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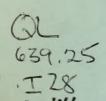
ICHTHYOPLANKTON AND STATION DATA FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS SURVEY CRUISES IN 1984

Elizabeth G. Stevens Richard L. Charter H. Geoffrey Moser Cynthia A. Meyer

> Woods Hole Oceanographic Institution ATLAS - GAZETTEER COLLECTION

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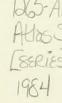




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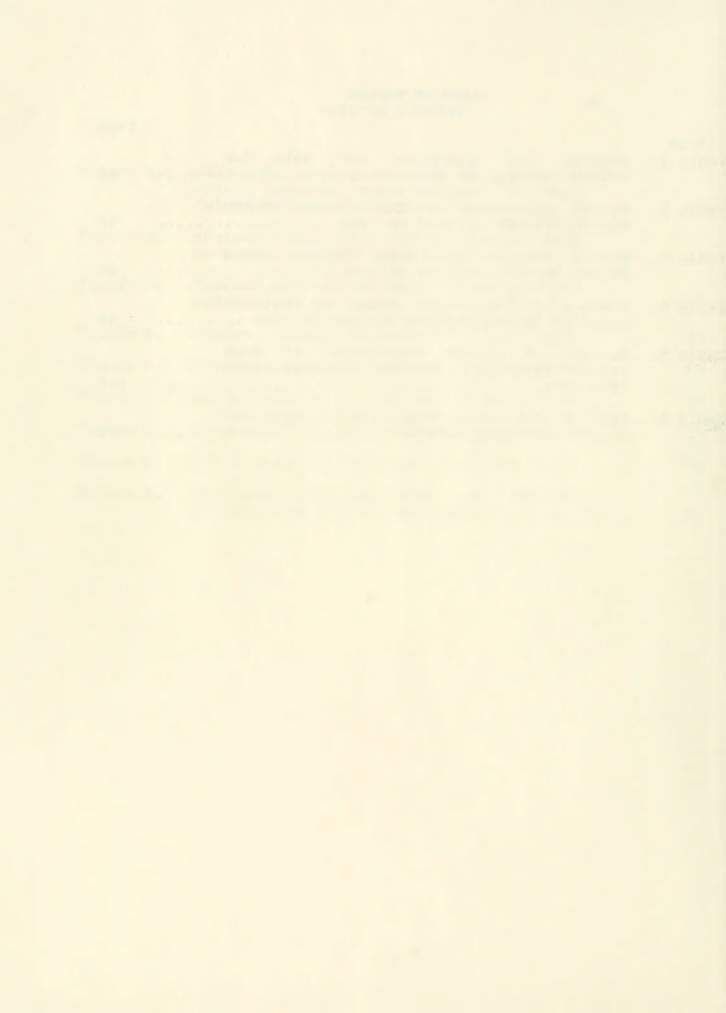
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ABSTRACT

This report provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises conducted off California and Baja California in 1984. It is the twenty-fourth report in a series that presents these data for all biological-oceanographic CalCOFI surveys from 1951 to the present. A total of 918 stations occupied during 8 monthly multivessel cruises over the survey area, which extended from Pt. Reyes, California to Rosario Bay, Mexico, and seaward to several hundred miles. The data are listed in a series of 6 tables; the background, methodology, and information necessary for interpretation and quantitative analysis of the data are presented in an accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors, are listed in the first table. Another key table lists, by station and month, standardized counts of each of the 135 larval fish categories identified from survey samples. This and previous and subsequent reports make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the computer data base.

INTRODUCTION

This report, the twenty-fourth of a series, provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) joint biological-oceanographic survey cruises conducted in 1984. program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study the population fluctuations of the Pacific sardine (Sardinops sagax) and the environmental factors that may play a role in such fluctuations. CalCOFI, known as the California Cooperative Sardine Research Program from 1949 to 1953, was made up of representatives of the South Pacific Fisheries Investigations (SPFI) of the U.S. Fish and Wildlife Service [now the La Jolla Laboratory, National Marine Fisheries Service (NMFS)], the Scripps Institution of Oceanography (SIO), the California Department of Fish and Game (CDFG), the California Academy of Sciences (CAS) and the Hopkins Marine Station of Stanford University. The first three of these agencies supplied ships and personnel to conduct the sea surveys. processed the plankton samples and analyzed ichthyoplankton from them. SIO processed and analyzed the hydrographic samples and measurements and also analyzed invertebrate groups from the plankton samples.

The boundaries, station placement, and sampling frequency for the CalCOFI survey area were based on the results of joint biological and oceanographic cruises conducted by NMFS and SIO during 1939-41. Those cruises were designed to collect sardine eggs and larvae and associated hydrographic data over the entire areal and seasonal spawning range of the species. On these survey cruises, plankton tows were made to 70 m, a depth which encompassed the vertical distribution of sardine eggs and larvae. Wide-ranging joint biological and oceanographic survey cruises were resumed in 1949 with sardine as the focus; however, an increasing interest in other biological components resulted in the deepening of standard tows to 140 m in 1951. This marked the beginning of truly quantitative ichthyoplankton sampling on CalCOFI surveys.

Hydrographic data from 1984 CalCOFI surveys have been published by Scripps Institution of Oceanography (Univ. of Calif., SIO, 1984 a-d; 1985). All available original records for 1984 were subjected to an extensive verification and editing process to produce this CalCOFI ichthyoplankton data report. This, with previous (Ambrose et al., 1987a-c; 1988a-d; Sandknop et al., 1987a,b; 1988a-d; Stevens et al., 1987a-c; 1988a,b; Sumida et al., 1987a,b; 1988a-c) and subsequent reports, make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the computer data base. The data base is modified when errors are discovered and when composite taxa from the earlier years are reidentified. These reports are the fundamental reference documents against which subsequent changes in the data base can be compared.

SAMPLING AREA AND PATTERN

In 1984, the eight CalCOFI cruises occupied stations during portions of all months from January through July and during October. The total of 918 stations included in this data base was occupied on 8 cruises, with an average of 115 stations per cruise (range 70-158). The station pattern covered in 1984 began at line 60, Pt. Reyes, California, and extended south to line 110, Rosario Bay, Mexico. The entire pattern was covered on Cruises 8401, 8404, 8407, and 8410. Cruises 8402 and 8403 combined covered the whole area as did Cruises 8405 and 8406. The offshore extent of the coverage was to station 100 (ca. 200-300 miles offshore) on all cruises with two exceptions: on Cruise 8404 coverage of lines 60 through 73.3 extended only to station 70 (ca. 80-180 miles offshore) and on Cruise 8410 coverage of lines 63.3, 66.7, 70.0 and 76.7 ended with station 80 (ca. 120-220 miles offshore). (Figures 1-9, Table 1).

Beginning in 1981 we changed our designation of ordinal survey lines (those ending in "3" and "7") to an exact decimal notation. Thus, lines 63,67,73,77 etc. were changed to 63.3, 66.7, 73.3, 76.7 etc. to indicate accurately the spacing between cardinal lines (those ending with "0"). Scripps Institution of Oceanography continues to use the original designation for ordinal lines as

reflected in Figures 2-9 and in their data reports (Univ. of Calif., SIO, 1984a-d; 1985).1

Two vessels were employed on 1984 survey cruises: the David Starr Jordan of NMFS, and the New Horizon of SIO. Both vessels participated in Cruises 8401, 8404, 8407 and 8410. Cruises 8402 and 8406 were conducted on the New Horizon and Cruises 8403 and 8405 on the David Starr Jordan. (Univ. of Calif., SIO, 1984 a-d; 1985).

SAMPLING GEAR AND METHODS

In 1978, the standard 1-m ring net with towing bridle was replaced by a bridle-free "bongo" net. The bongo frame (McGowan and Brown, 1966; Smith and Richardson, 1977) consists of a pair of circular frames connected to a central axle which is horizontal to the towing wire and attached to it by a clamp. The axle is free to rotate so that the mouth openings are vertical during the tow. The standard CalCoFI version of the bongo net has 71 cm diameter frames and net material constructed of nylon mesh. Each net consists of a cylindrical section ca. 146 cm long, a truncated conical section ca. 161 cm long, and a detachable cod end. The starboard net, from which the standard sample is taken, is constructed of 0.505 mm mesh. The sample from the port side is used for other purposes; the mesh size is either 0.505 mm or 0.333 mm depending on requirements. The cod end of each net is constructed of 0.333 mm mesh.

The standard tow in 1984 was an oblique haul to ca. 210 m depth (to 15 m from the bottom in shallow areas) designed to filter a constant amount of water per depth interval (ca. 2 $\rm m^3/m$ of depth) over the vertical range of most ichthyoplankters. Hauls were made at a ship speed of 1.5-2.0 knots and were initiated by clamping the

¹CalCOFI lines (Figure 9) are arranged perpendicular to the coastline and extend from the Canadian border (line 10) to below Cape San Lucas, Baja California (line 157). Stations were established on the basis of a perpendicular to line 80 (off Pt. Conception) at a point designated as station 60. Stations were plotted seaward and shoreward from station 60 on each line. Cardinal CalCOFI lines (those ending in "0") are 120 miles apart and usually bracket two ordinal lines (ending in "3" or "7"), so that lines are 40 miles apart over most of the pattern. Cardinal stations are 40 miles apart and typically these are separated by a station number ending in "5" so that stations are 20 miles apart out to station 90 on most lines. Stations are placed at closer intervals near the coast and islands to accommodate these features (see Kramer et al., 1972, for further details).

net to the towing cable above the 34 kg terminal weight suspended below the surface. The net was lowered to ca. 210 m depth by paying out 300 m of wire over a 6 minute period (35 m of depth/min). After fishing at depth for 30 seconds, the net was retrieved at 20 m/min (14 m depth/min). The angle of stray of the towing cable was recorded every 30 seconds and maintained at 45° ($\pm 3^{\circ}$) by adjusting the ship speed and course. After reaching the surface, the nets were washed down and the samples preserved in 5° formalin buffered with sodium borate. Flowmeter readings were made at the beginning and end of each tow. Detailed descriptions of gear and methods are given by Kramer et al. (1972), and Smith and Richardson (1977).

LABORATORY PROCEDURES

Laboratory processing began with the determination of a displacement volume for each sample (methods described in Staff, SPFI, 1953; and Kramer et al., 1972). Sorting involved the removal of ichthyoplankton from the sample and identification and separation of: eggs and larvae of Pacific sardine and northern anchovy; larvae of Pacific hake; and eggs of Pacific saury. Some samples were fractioned into aliquots using a Folsom plankton splitter (McEwen et al., 1954) prior to the sorting. Criteria for fractioning were: 1) samples taken at a distance greater than 200 nautical miles from shore were not fractioned, 2) samples taken closer than 200 miles from shore and containing 25 ml or less of plankton were not fractioned, and 3) samples taken closer than 200 miles from shore and containing more than 25 ml of plankton were fractioned to 50% of their original volume (J.R. Thrailkill, pers. comm.). Aliquot percentages for fractioned samples from 1984 are listed in Table 1 under the "Percent Sorted" column; 41% of the samples collected in 1984 were fractioned.

A "standard haul factor" (SHF) was calculated for each tow to make them comparable and allow estimations of areal abundance. This factor adjusts the number of eggs or larvae in a haul to the number in 10 $\rm m^3$ of water strained per meter of depth fished. If the vertical distribution of the species has been encompassed, then the adjusted value is equivalent to the number under 10 $\rm m^2$ of sea surface. The SHF is calculated for each haul by the formula:

$$SHF = 10 D V$$

V = total volume of water (m³) strained during the haul

V = R · a · p

- where R = total number of revolutions of the current meter during the haul
 - $a = area (m^2)$ of the mouth of the net
 - p = length of column of water (m) needed to produce one revolution of the current meter.

Tow depth, volume of water strained, and standard haul factor are listed in Table 1 for each tow taken during 1984. Detailed descriptions of factors involved in calculating these values are presented in Ahlstrom (1948), Kramer et al. (1972), and Smith and Richardson (1977).

IDENTIFICATION

Identification of ichthyoplankton species beyond those separated during the sorting process was done by a separate group of specialists. Ontogenetic stages of fishes are inherently difficult to identify, and this is further complicated by the large number and diversity of species which contribute to the ichthyoplankton of the California Current region. identifications were accomplished by establishing ontogenetic series on the basis of morphology, meristics, and pigmentation, and then identifying these series by relating them to known metamorphic, juvenile, or adult stages with overlapping features (Powles and Markle, 1984). A total of 135 taxa was identified for 1984: 90 to species, 22 to genus, 18 to family, and 5 to order or suborder. In 1981 four species of Sciaenidae were identified for the first time: Cheilotrema saturnum, Genyonemus lineatus, Roncador stearnsii, and Seriphus politus. Another sciaenid, Atractoscion nobilis, was identified for the first time in CalCOFI samples in 1984, as was the anotopterid, Anotopterus pharao. In 1984 all larvae of Citharichthys were identified to species, whereas in 1951-1953 and 1961-1981 only large specimens of C. stigmaeus were identified to species (Sumida et al., 1987a; Ambrose et al., 1988d).

Other identification caveats are as follows:

- Engraulis mordax some nearshore samples of small E. mordax may contain other anchovy genera which could not be differentiated.
- Bathylagus spp. includes small and/or disintegrated specimens of Bathylagus or Leuroglossus stilbius.
- Lampanyctus regalis underrepresented because of inability to differentiate small larvae (<5 mm) from those of other Lampanyctus species; counts may include other species of this large and complex genus.

- Lampanyctus ritteri comment for L. regalis applies to this species.
- Blennioidei this category includes members of northern stichaeioid families and true blennioids (other than Hypsoblennius spp.) in the southern part of the pattern.

COMPUTER ENTRY AND EDITING

Each taxon listed on the original identification sheets was given a 3-digit code based on the list of codes in Haight et al. (1979). Taxon codes and counts from these sheets were entered by cruise and station, along with pertinent station and tow data, into the VAX 11/780 computer at the University of California, San Diego, Computing Center. After entries were completed for the entire year, print-out listings of taxa and counts at each station were compared with the original data sheets to eliminate keypunch errors. Next, data in the file were cross-checked with data in an existing file that contained: station and tow data; numbers of eggs of sardine, anchovy, and saury; numbers of larvae of sardine, anchovy, hake, jack mackerel, and Pacific mackerel; total number of fish eggs; and total number of fish larvae.

Discrepancies in ichthyoplankton data in these two files were corrected by inspecting original records from the sorting laboratory, the original ichthyoplankton identification sheets, and the samples themselves. Station and tow data discrepancies between the two files were corrected by reviewing ships' logs and deck tow sheets, original records from the sorting laboratory, cruise announcements, publications, header information on the ichthyoplankton identification sheets, and station plots generated for each cruise. All station and tow data were checked by comparing these sources.

A listing of each taxon by station (Table 4) was the primary document for subsequent checks. Misidentifications found in geographic outlier checks and other misidentifications and data problems discovered in the course of examining archived samples resulted in several iterations of Table 4. Finally, totals in Table 4 were checked against annual summaries of incidence and abundance (Tables 2 and 3). Ecological analyses of the data were conducted concurrently with editing procedures and provided cross-checks that allowed correction of errors.

SPECIES SUMMARY

Larvae of northern anchovy (Engraulis mordax) represented 41.4% of all fish larvae taken on CalCOFI cruises during 1984 and were 2.5 times more abundant than the lightfish species, Vinciguerria lucetia, the next ranking taxon with 16.5% of the

total larvae; northern anchovy ranked second in frequency of occurrence while V. lucetia ranked third (Tables 2, 3). The myctophid Protomyctophum crockeri ranked first in frequency of occurrence but only ninth in abundance with 1.4% of the total larvae. Pacific hake, Merluccius productus, ranked third in abundance with 9.6% of total larvae, and 17th in incidence. Sebastes spp. ranked fourth in both abundance (5.0% of total larvae) and incidence. Fifth, sixth and seventh in numbers of larvae were a myctophid, Stenobrachius leucopsarus (4.3%), the deep-sea smelt Leuroglossus stilbius (4.0%), and another myctophid Triphoturus mexicanus (2.6%). These ranked 6th, 9th and 5th respectively in numbers of occurrences. The last three of the ten most abundant taxa were a deep-sea smelt Bathylagus ochotensis (1.9%), the myctophid Protomyctophum crockeri noted above (1.4%) and the bristlemouth Cyclothone spp. (1.1%). These ranked 7th, 1st and 8th in occurrence. The 10 most abundant taxa included 88% of all the larvae collected during CalCOFI cruises in 1984. remaining 12% was distributed among 125 other taxa plus the disintegrated and unidentified categories. Of the top 10, 7 are midwater taxa, 2 are coastal demersal taxa, and 1 is a coastal pelagic species.

EXPLANATION OF TABLES

- Table 1 This table lists by cruise the pertinent station and tow data for 1984: the volume of water filtered and standard haul factor for each tow, the percent of sample sorted, and the total numbers of fish eggs and larvae. CalCOFI cruises are designated by four digits; the first two indicate the year and the second two the month. Within each cruise the data are listed in order of increasing line and station number (southerly and seaward directions); the order of station occupancy is shown on the station charts (Figures 2-8). Stations are designated by two groups of digits; the first set indicates the line and decimal fraction, and the second Time is listed set indicates the station on the line. as Pacific Standard Time at the start of each tow in 24-hour designation. Methods for determining tow depth, volume of water strained, standard haul factor, and percent sorted were described in the methods section. The values for total fish eggs and larvae represent raw counts (unadjusted for percent sorted or standard haul factor). Ship codes are as follows: JD, David Starr Jordan; NH, New Horizon.
- Table 2 This table lists pooled occurrences of all larval fish taxa taken during 1984 in ranked order.

- Table 3 This table lists pooled counts of all larval fish taxa taken during 1984 in ranked order. Numbers are adjusted for percent sorted and standard haul factors.
- Table 4 This table gives numbers of fish larvae for each taxon, listed by station and calendar month in which the tow was taken. Counts are adjusted for percent of sample sorted and standard haul factor. Average values are given for stations occupied more than once during a month. See Table 1 for station and tow data and Table 6 for listing of stations with multiple occupancies during a month. Multiple occupancies occurred when a station was occupied more than once during a calendar month. The orders are listed in "phylogenetic" sequence modified from Nelson (1984). Subtaxa within each order are listed alphabetically. Page numbers for each taxon are given in the index at the end of the report.
- Table 5 This table is a summary of pooled occurrences of all larval fish taxa taken on CalCOFI surveys from 1972 to 1984. Taxa are listed in the same order as in Table 4.
- Table 6 List of stations with multiple occupancies in one month during 1984.

ACKNOWLEDGMENTS

David Ambrose, Elaine Sandknop and one of us (EGS) originally identified larvae from CalCOFI cruises in 1984. Amy E. Hays coded each larval fish taxon or type and entered it into the computer. Dorothy Roll designed the CalCOFI data acquisition system. Roy Allen helped with graphics and production of the report. Lorraine Prescott prepared the manuscript for printing. Paul Smith offered helpful suggestions throughout the project. Izadore Barrett, Director of the Southwest Fisheries Center, provided the support critical to the completion of the project. James Thrailkill planned CalCOFI surveys and supervised cruises, data handling, and plankton sorting from 1949 to 1986 and is largely responsible for the high quality of these operations. Without the vision and direction of Elbert Ahlstrom and Elton Sette and the dedicated efforts of the many people who collected, processed, and analyzed the samples, this data base would not exist.

LITERATURE CITED

- Ahlstrom, E. H. 1948. A record of pilchard eggs and larvae collected during surveys made in 1939 to 1941. U.S. Wildl. Serv. SSRF-54, 82 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Methot. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1951. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 79, 196 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Methot. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries survey cruises in 1955. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 83, 185 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C.R. Methot. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1960. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 88, 253 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1963. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, No. 94, 209 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1967. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, No. 98, 103 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988c. Ichthyoplankton and station data for California Cooperative Fisheries Investigations survey cruises in 1975. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 110, 229 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988d. Ichthyoplankton and station data for California Cooperative Fisheries Investigations survey cruises in 1981. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 112, 170 p.
- Haight, C. A., H. G. Moser, and P. E. Smith. 1979. Data programs: CalCOFI. II. Fish eggs and larvae identification sheet. National Marine Fisheries Service, Southwest Fisheries Center, La Jolla, Admin. Rep. No. LJ-79-25.

- Kramer, D., M. Kalin, E. G. Stevens, J. R. Thrailkill, and J. R. Zweifel. 1972. Collecting and processing data on fish eggs and larvae in the California Current Region. NOAA Tech. Rep. NMFS Circ. 370, 38 p.
- McEwen, G. F., M. W. Johnson, and T.R. Folsom. 1954. A statistical analysis of the performance of the Folsom Plankton Sample Splitter, based on test observations. Arch. Meteor. Geophys. Bioklim. Ser. A, 7:502-527.
- McGowan, J. S. and D. M. Brown. 1966. A new opening-closing paired zooplankton net. SIO Ref. 66-23, 56 p.
- Nelson, J. S. 1984. Fishes of the world. John Wiley and Sons, N.Y., 523 p.
- Powles, H. and D. F. Markle. 1984. Identification of larvae, p. 31-33. In: Ontogeny and systematics of fishes. H. G. Moser, W. J. Richards, D. M. Cohen, M. P. Fahay, A. W. Kendall, Jr., and S. L. Richardson (eds.). Spec. Publ. No. 1. Am. Soc. Ichthyol. Herpetol., 760 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1952. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 80, 207 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1958. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 86, 248 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988a. Ichthyoplankton and station data California Cooperative Oceanic Fisheries Investigations survey cruises in 1961. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 92, 167 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1964. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 95, 222 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1968. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 99, 112 p.

- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer and A. E. Hayes. 1988d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1978. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 111, 216 p.
- Smith, P. E. and S. L. Richardson. 1977. Standard techniques for pelagic fish egg and larva surveys. FAO Fish. Tech. Pap. No. 175, 100 p.
- Staff, South Pacific Fishery Investigations. 1953. Zooplankton volumes off the Facific Coast, 1952. U.S. Fish Wildl. Serv. SSRF- 100, 41 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1953. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 81, 186 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1956. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 84, 189 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1959. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 87, 273 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1965. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 96, 220 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1969. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 100, 265 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1954. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 82, 207 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey in 1957. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 85, 225 p.

- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1962. U.S. Dep. Commer., NOAA Tech. Memo, NMFS, SWFC, No. 93, 179 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1966. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 97, 287 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988c. Ichthyoplankton and station data for California Cooperative Fisheries Investigations survey cruises in 1972. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, SWFC, No. 109, 219 p.
- University of California, Scripps Institution of Oceanography. 1984a. Data report: physical, chemical and biological data, CalCOFI Cruise 8401. SIO Ref. 84-18.
- University of California, Scripps Institution of Oceanography. 1984b. Data report: physical, chemical and biological data, CalCOFI Cruises 8402-03. SIO Ref. 84-23.
- University of California, Scripps Institution of Oceanography. 1984c. Data report: physical, chemical and biolgical data, CalCOFI Cruises 8404, 8405, 8406. SIO Ref. 84-25.
- University of California, Scripps Institution of Oceanography. 1984d. Data report: physical, chemical and biological data, CalCOFI Cruise 8407. SIO Ref. 84-30.
- University of California, Scripps Institution of Oceanography. 1985. Data report: physical, chemical and biological data, CalCOFI Cruise 8410. SIO Ref. 85-1.

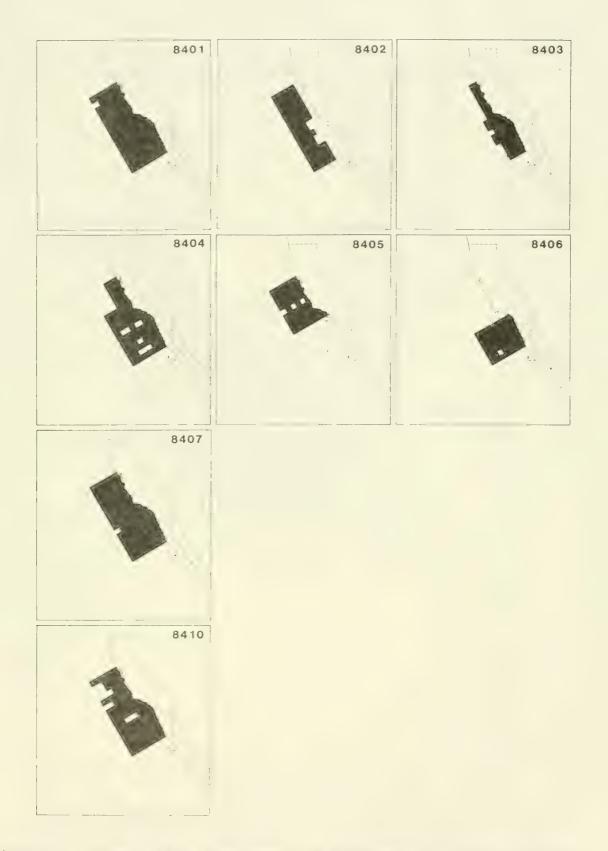


Figure 1. Composite arrangement of diagrammatic charts showing areas sampled on each CalCOFI cruise during 1984.

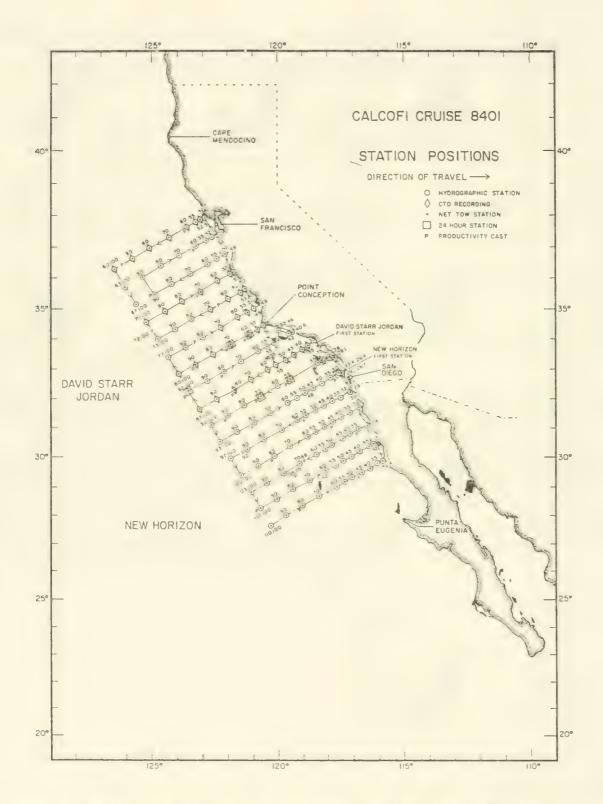


Figure 2. Station pattern for CalCOFI Cruise 8401 showing tracks for the David Starr Jordan and New Horizon. Symbols for station activities indicated in legend. Modified from chart in Univ. of Calif., SIO (1984a).

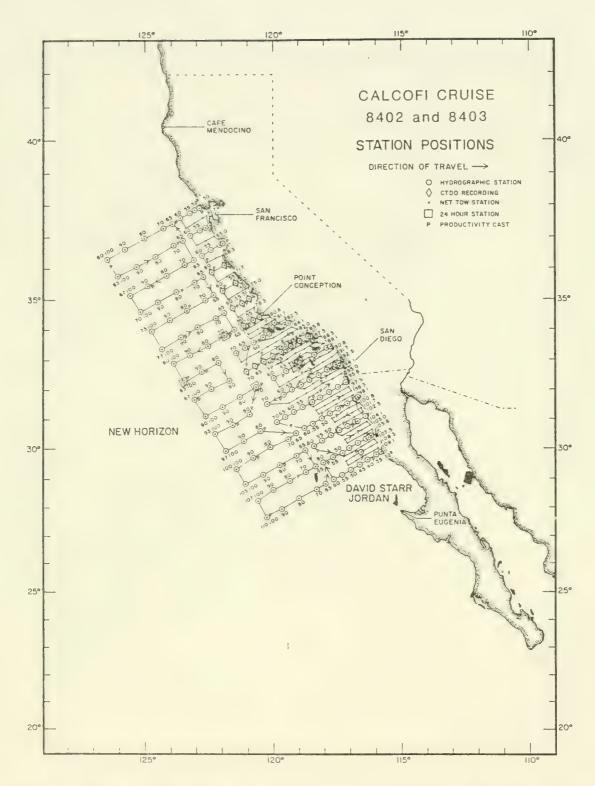


Figure 3. Station pattern for CalCOFI Cruise 8402 and 8403 showing tracks for the New Horizon (8402) and David Starr Jordan (8403). Symbols for station activities indicated in legend. Modified from chart in Univ. of Calif., SIO (1984b).

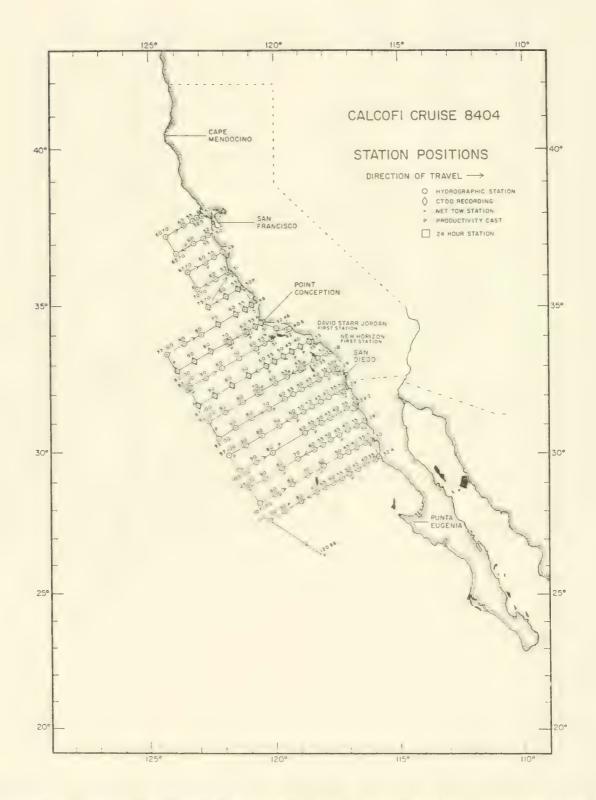


Figure 4. Station pattern for CalCOFI Cruise 8404 showing tracks for the David Starr Jordan and New Horizon. Symbols for station activities shown in legend. Modified from chart in Univ. of Calif., SIO (1984c).

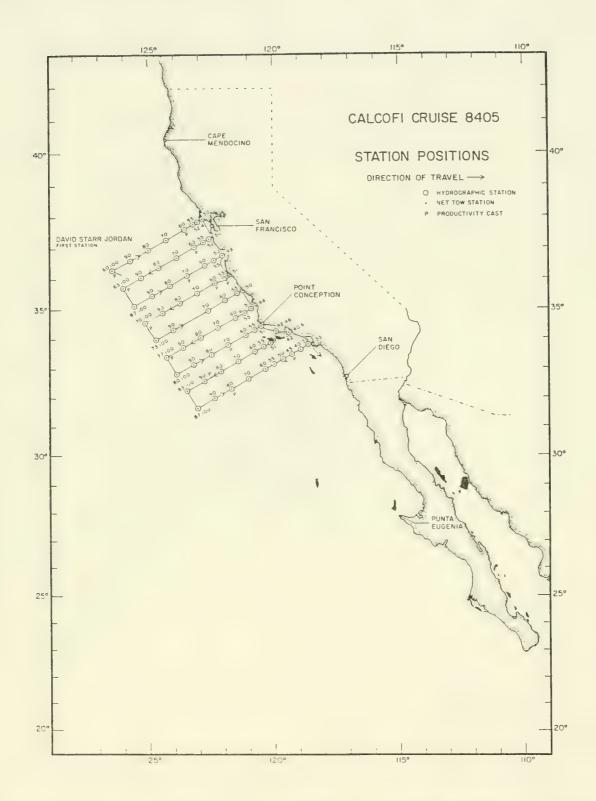


Figure 5. Station pattern for CalCOFI Cruise 8405 showing track for the *David Starr Jordan*. Symbols for station activities indicated on legend. Modified from Univ. of Calif., SIO (1984c).

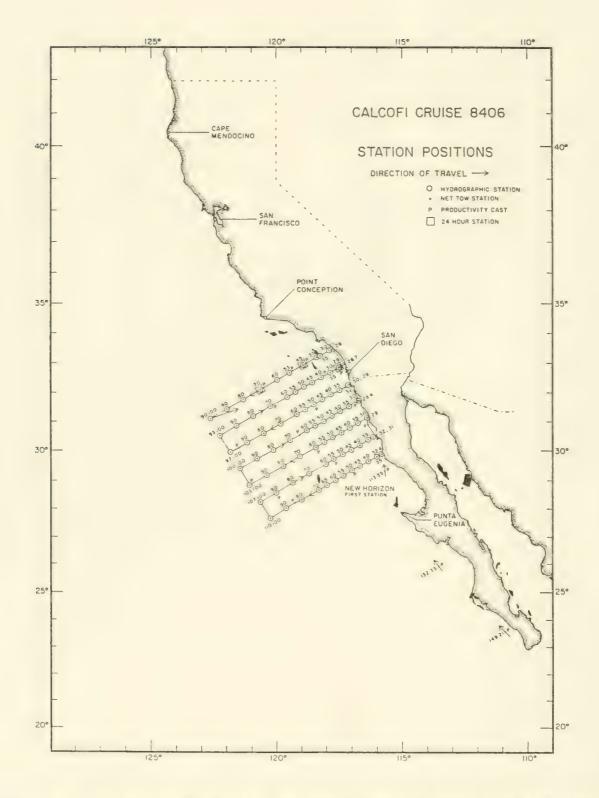


Figure 6. Station pattern for CalCOFI Cruise 8406 showing track for the New Horizon. Symbols for station activities indicated in legend. Modified from chart in Univ. of Calif., SIO (1984c).

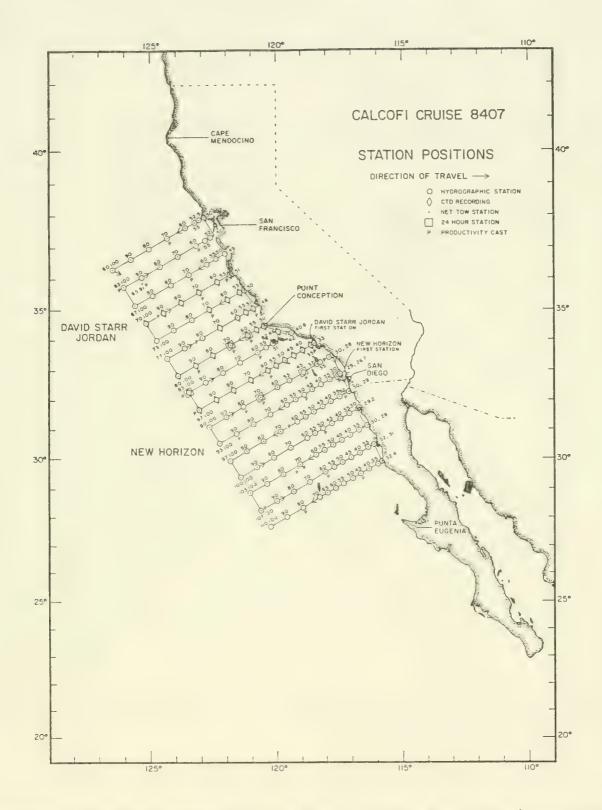


Figure 7. Station pattern for CalCOFI Cruise 8407 showing tracks for the David Starr Jordan and New Horizon. Symbols for station activities indicated in legend. Modified from chart in Univ. of Calif., SIO (1984d).

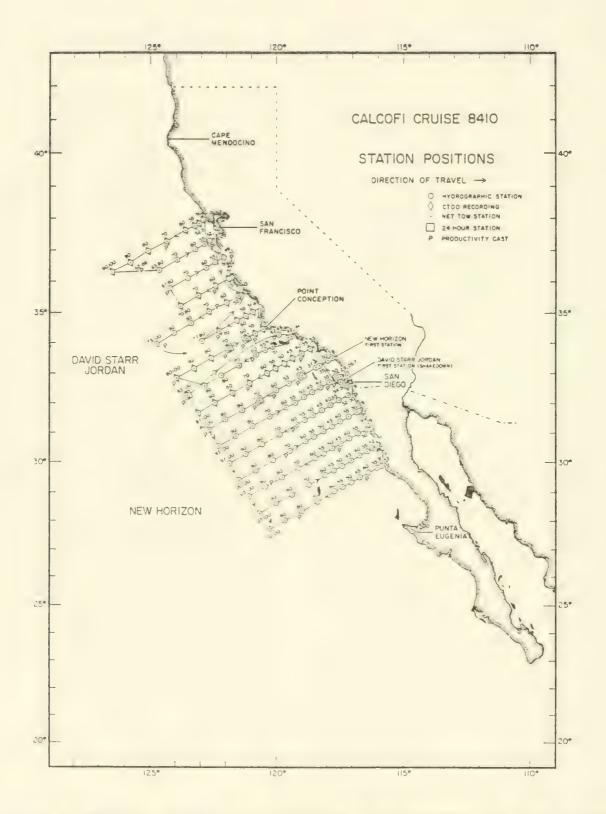


Figure 8. Station pattern for CalCOFI Cruise 8410 showing tracks for the David Starr Jordan and New Horizon. Symbols for station activities indicated in legend. Modified from chart in Univ. of Calif., SIO (1985).

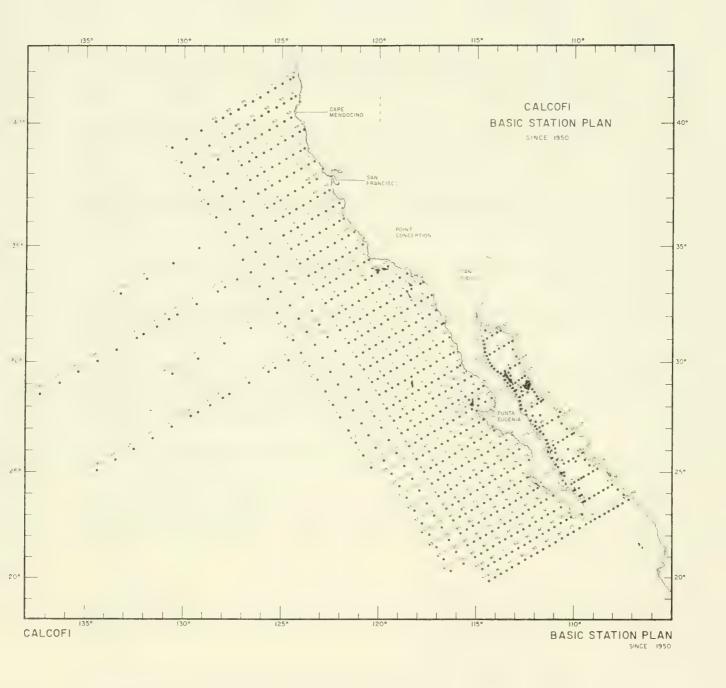


Figure 9. The basic station plan for CalCOFI cruises from 1950 to the present.

Station and plankton tow data for CalCOFI cruises in 1984. Counts for fish eggs and larvae are not adjusted for standard haul factor or percent of sample sorted. TABLE 1.

8401 CalCOFI Cruise

	Total	Eggs	733	180	114	22	38	5	19	2	25	15	6	13	20	ı	4	617	10	10	16	9	7	9	2	4	51	4	5	m	~
	Total	Larvae	33	1117	270	28	2	9	3	1	e	98	37	61	6	0	2	64	11	23	m	4	m	2	41	2	æ	2	3	13	-
	Percent	Sorted	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	50.0	50.0	54.2	50.0	100.0	100.0	50.0	56.3	47.3	100.0	100.0	100.0	100.0	51.6	100.0	50.0	20.0	100.0	100.0
Stand- ard	Haul	Factor	3.88	4.87	4.28	4.93	2.07	2.07	5.27	4.45	3.93	4.88	5.03	5,38	5.32	5.30	5.18	4.83	69°5	5.48	5,52	5.18	2.07	4.76	5.41	5.10	5.47	5.23	5.13	5.31	5.24
Vol. Water	Strained	(cu. m)	111	173	293	435	430	433	415	460	99	176	414	413	402	415	416	173	382	391	398	415	430	450	401	429	411	418	419	405	413
Tow	Depth	(m)	43	84	125	215	218	219	218	204	22	98	208	222	213	220	215	84	218	214	219	215	218	214	217	218	225	218	215	215	216
	Time	(PST)	0230	0505	0805	1315	2030	0250	0915	1550	2110	1900	1555	1225	0190	0025	1830	0060	1510	1840	0000	0625	1235	0325	0215	2325	1815	1100	0435	2220	1550
	Tow Date	yr. mo. day	84 01 23	4 01 2	84 01 23	84 01 23	84 01 23	84 01 24	84 01 24	84 01 24	84 01 22	84 01 22	84 01 22	84 01 22	84 01 22	84 01 22	84 01 21	84 01 20	84 01 20	84 01 20	84 01 21	84 01 21	84 01 21	84 01 25	84 01 20	84 01 19	84 01 19	84 01 19	84 01 19	84 01 18	84 01 18
	Ship		JD	JD	JD	JD	JD	JD	JD	JD	JD	J.	J.D	JD	J.D	JD															
	Long. (W)		122 52.9	23 03.	3 14	23 36	24 19	25 0	125 46.3	26 29	22 28	22 37	22 5	23 11	23 54	124 37.7	25 20	21 5	122 24.9	22 4	123 29.1	124 11.7	124 54.2	125 36.4	21 43	21 52	122 21.9	123 04.4	123 46.7	124 28.8	125 10.8
	Lat. (N)	deg. min.	7 56.	7 53	9	7 36	7 16.	6 56.	6 36.	6 16.	7 22.	7 18.	7 12.	7 02.	6 42.	6 22.	6 02.	6 49.	6 37.	6 27.	6 07.	35 47.2	5 27.	5 07.	6 10.	6 06.	5 52.	5 32.	5 12.		4 32.
		Station		0 1	1 10	0	0	0	0	0	0	2	5	0	0	0	0	6	5	0	0.	0.	0.06		1.	3	0				0.
		Line S	0 03		0 (0	4			0	2	6	6	(1)	3	8	m	9	9	9		9			0	0	0	0	0	0.	0

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		Total	Eggs	10	21	38	1		4	5	247	7	9	2	23	80	7	5	29	41	65	3	11	9	13	20	18	66	86	196	49	13	22	11
		Total	Larvae	3	29	27	0	2	5	4	14	93	9	17	1.4	4	5	7	163	30	16	2	4	4	5	28	27	54	18	43	36	5	7	4
		Percent	Sorted	100.0	49.4	100.0	48.1	50.0	100.0	100.0	100.0	100.0	50.0	44.2	54.2	56.1	48.1	100.0	100.0	52.6	45.8	54.9	47.6	100.0	100.0	46.7	100.0	100.0	100.0	100.0	55.8	100.0	100.0	100.0
Stand-	ard	Hanl	Factor	3.92	5.06	5.44	5.50	5.11	5.28	5.56	3.79	4.85	5.20	4.40	5.25	5,34	4.84	5.09	4.81	5,34	5.22	5.04	4.85	5.12	5.23	5.24	4.57	5.30	4.35	5.12	5.79	5.34	5.40	5.60
Vol.	Water	Strained	(cn. m)	74	425	404	399	424	413	389	99	456	417	469	407	407	435	434	153	414	414	421	429	425	412	419	79	275	325	428	386	410	418	394
	TOW	Depth	(m)	29	215	220	219	217	218	216	21	221	217	206	214	218	210	221	74	221	216	212	208	218	215	219	36	145	142	219	224	219	225	220
		Time	(PST)	2355	0320	0160	1650	2215	0320	0925	1800	1520	1035	0515	2155	1505	0160	0255	2310	0320	0710	0090	0715	1420	2055	1620	2230	2020	0940	0640	0230	2015	1415	0725
		Tow Date	yr. mo. day	84 01 16	84 01 17	84 01 17	84 01 17	84 01 17	84 01 18	84 01 18	84 01 16	84 01 16	84 01 16	84 01 16	84 01 15	84 01 15	84 01 15	84 01 15	84 01 11	84 01 12	84 01 12	84 01 13	84 01 14	84 01 14	84 01 14	84 01 10	84 01 10	84 01 10	84 01 10	84 01 10	84 01 10	84 01 09	84 01 09	84 01 09
		Ship	Code	JD																														
		Long. (W)	deg. min.	2	121 28.1		122 39.9	123 21.9	124 03.7	124 45.4	120 42.4	120 55.1	121 11.9	121 32.9	122 14.8	2	2	124 19.4	120 31.4	2	2	121 50.6	122 32.0	123 13.3	123 54.4	119 56.3		119 30.5	120 08.0	20 2	120 45.3	1 2	122 07.7	
		Lat.(N)	eg. m	5 38.	5 32.	5 18.	4 58.	4 38.	4 18.	3 58.	5 07.	5 01.	4 53.	4 43.	4 23.	4 03.	3 43.	3 23.	4 27.	4 19.	4 09.	3 49.	6	3 09.	2 49.	4 16.	4 13.	4 10.	3 52.	3 44.	3 34.	3 14.	2 54.	2 34.
			t a	0.	53.0	0.	70.07	0	0.	100.0	φ.	-		0.	- 0	0.	0.06	- 0	7				0.08	0.06	- 0		0.	0	ļ.		0.09			0.06
			ij.	73.3	3	3	3	3	3.	3	9	9	9	9	9	9	9	9	0.	0.	0.	0.		0.	- 6	82.0	3		83.3	3.		3.		e,

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		Total	Eggs	7	12	9	20	165	32	06	30	13	6	6	7	5	57	39	508	89	51	15	6	14	15	0	0	3	ptered	5	9	4	10	7	
		Total	Larvae	6	6	34	244	242	294	30	Φ	13	∞	8	4	9	8	205	36	113	87	80	80	15	5	13	m	9	5	6	10	7	2	2	
		Percent	Sorted	100.0	100.0	100.0	100.0	100.0	100.0	52.9	55.3	100.0	51.9	100.0	100.0	100.0	100.0	100.0	100.0	52.4	53.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	50.0	100.0	
Stand-	ard	Haul	Factor	5.63	4.00	5.36	5.58	4.94	4.43	4.50	5.22	5.92	4.96	5.27	5.53	4.68	5.02	5.11	5.19	5.12	4.58	4.91	4.94	4.88	4.86	4.54	5.14	5.27	4.84	4.45	5.08	5.24	4.43	5.30	
Vol.	Water	Strained	(cn. m)	387	112	400	389	423	147	471	416	372	426	413	401	390	418	408	400	423	444	410	410	418	401	128	412	405	432	435	410	416	437	399	
	TOW	Depth	(田)	218	45	215	217	209	65	212	217	220	212	218	222	183	210	208	208	217	203	201	203	204	195	28	212	213	209	194	208	218	193	211	
		Time	(PST)	0605	0200	0955	1620	2315	0335	0880	2100	0400	1045	1740	0015	0445	0142	2126	1346	2256	2345	0635	0526	1146	1810	0325	0115	0120	2117	1720	1321	0855	0200	0040	
		Tow Date	yr. mo. day	84 01 08	84 01 05	84 01 05	84 01 05	84 01 05	84 01 06	84 01 06	84 01 06	84 01 07	84 01 07	84 01 07	84 01 08	84 01 05	84 01 05	84 01 04	84 01 05	84 01 05	84 01 06	84 01 07	84 01 08	84 01 08	84 01 08	84 01 12	84 01 12	84 01 11	84 01 10	84 01 10	84 01 10	84 01 10	84 01 10	84 01 10	
		Ship	Code	JD	NH	NH	NH	NH	NH	EN	HN	NH	NH	HN	HN	HN	NH	NH	NEW	NH	HN	HN	HN												
		ong.	eg. I	23	_	18		-	119 39.8	N	0	121 02.0	0	0	123 04.2	-	$\overline{}$	\Box	$\overline{}$	119 29.1	\neg	120 38.7	N	121 59.6	122 39.0	117 18.2	117 27.2	117 31.7	117 52.1	118 12.9	118 33.3	118 52.3	19 1	119 34.1	
		at. (N	eg. m	2 14.	3 53.	3 48.	3 39.	3 29	3 19.	3 09.	2 59.	2 39.	2 19.	1 59.	1 39.	3 29.	3 25.	3 15.	3 11.	2 39.	2 24.	2 04.	4	1 24.	05.	2 57.	2 52.	5 51.	2 40.	2 30.	2 20.	2 09.		1 50.	
			ati	- 0			0		50.0				0											0.06	0.	9			5.	0.	5.	0.	55.0	0.	
			ine	3	6.	9	9	6.	86.7	9	9	9	9	9	9	0.	0.	0.	0.	0.	0.	0	0	0	0	3	С.	3	3	3	3.	3.	93.3	3	

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		Total	Sbba	20	0 4	74	OT	15	64	26	2	11	3	9	4	16	35	29	18	2.0	32	3	0	11	∞	10	18	34	53	18	09	14	256	2
		Total	Larvae	7	7 6	333	105	20	16	12	М	5	Э	18	ω	9	10	53	47	43	38	2	4	4	19	12	10	17	27	28	120	190	5	5
		Percent	Sorted	0 001		0		100.0	100.0	100.0	100.0	100.0	40.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand-	ard	Haul	Factor	20) \	9 .	ا نہ	4.77	3.98	3.76	5.05	4.92	4.85	4.79	4.47	4.98	5.42	5.19	4.84	5.02	4.91	5.26	4.54	5.00	5.10	5.11	5.44	5.52	4.41	5.11	5.02	5.06	3.82	3.87
Vol.	Water	Strained	(cn. m)	300	7	433	444	421	94	9.5	413	406	432	432	435	422	401	412	422	427	420	410	434	418	425	396	383	394	438	418	414	419	54	125
	TOW	Depth S	(m)	210		707	191	201	38	36	209	200	210	207	194	210	217	214	204	215	206	216	197	209	216	202	208	218	193	213	208	212	20	48
		Time	(PST)	1852) 4	7 7	19	2355	1155	1329	1520	1843	2234	0230	0650	11115	1517	2120	0315	6060	1528	2328	9161	1444	1100	0620	0205	2209	1629	0917	0320	2120	0520	0715
		Tow Date	yr. mo. day	84 01 00	100	4 01 0	4 01 0	84 01 08	84 01 12	84 01 12	84 01 12	84 01 12	84 01 12	84 01 13	84 01 13	84 01 13	84 01 13	84 01 13	84 01 14	84 01 14	84 01 14	84 01 16	84 01 16	84 01 16	84 01 16	84 01 16	84 01 16	84 01 15	84 01 15	84 01 15	84 01 15	84 01 14	84 01 17	84 01 17
		Ship	Code	MH	NTT I	HN	E I	HN	NH	HIN	NH	NH	HN	EN	NH	HN	HIN	HIN	HN	NH	HN	NH	NB	NH	EEN	NH								
		•	deg. min.	20 15		0.40	21 35.	22 16	17 05.	7 08.	7 16	17 29.	7 49	18 09	118 29.5	18 50	19 1	19 49	20 30.	21 10	21 5	16 46.	0	17 2		8 0	8 2	8 47	19 28.	0 0	120 46.9	1 27.	6 2	116 24.3
		Lat.(N)	deg. min.	20		1 10.	51.	30.	17.	15.	11.	05.	55.	45.	36.	25.	15.	54.	35.	16.	55.	41.	31 31.4	20.	10.	00.	0 51.	0 41.	0 21.	0 01.	29 41.0	9 20.	1 09.	
			Station		•			0															35.0				5.	0.	0.		0.		9.	
			Line 5	۲		3 (η.	m	0	9	9	. 9	. 9	9	6.	6.	6.	0	6 °		0		100.0	100.0	100.0	00	00	100.0	00.	100.0	100.0	00.	3	03.

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Stand-

Vol.

									TOW	Water	ard	i	í	
		Lat.(N)	Long. (W)	Ship	TOV	Tow Date			Depth	Strained	Hanl	Percent	Total	Total
Line S	Station	deg. min.		Code	yr.	mo.	day	(PST)	(m)	(cn. m)	Factor	Sorted	Larvae	Eggs
(1	t.	14 7	MIN	VO	5	17	1130	216	416	5.20	100.0	I	3
	0 0	01.	7 05			50	17	3	213			100.0	9	2
103.3	40.0	30 36 5	23.	N H		0.1	17	1954	209	419	4.99	100.0	1	0
, «		27.	17 44.	NH	84	0.1	17	2346	201	439	4.59	100.0	6	11
0 2	. الر	16.	18 04.	HN	84	0.1		0300	205	403	5.08	100.0	30	13
03.		05.	8 24.	HN	84	0.1	18	0710	187	450	4.15	100.0	91	22
03.		46.	19 04.	HN	84	0.1	18	1319	208	415	5.01	100.0	18	81
با (26.	9 43.	NH	84	0.1	18	1908	193	429	4.49	100.0	89	37
, ~		06.	0 24.	N	84	0.1	19	0053	211	406	5.19	100.0	13	56
. ~	1	46.	1 02.	HN	84	0.1	19	0630	189	434	4.36	100.0	46	23
3 10	3 2	29.	6 05.	N	84	0.1	2.1	1426	14	54	2.62	100.0	27	263
1 10		27.	6 10.	NIE	84	0]	2.1	1226	172	349	4.92	100.0	5	45
3 10		21.	6 21.	NE	84	0]	2.1	0160	212	402	5.26	100.0	4	3
1 10) (11.	6 41	NH	84	01	2.1	0440	190	432	4.40	100.0	23	25
		01.	7 00.	NH	84	01	21	0035	201	417	4.82	100.0	13	13
1		51.	7 21	NH	84	0.1	20	2050	197	428	4.59	100.0	47	85
10	1 1	40.	7 38.	NH	84	0.1	20	1700	206	407	90.5	100.0	6	89
1 10		31.	8 01.	NH	84	0.1	20	1313	205	424	4.83	100.0	7	132
	70.0	11.	8 40.	EN	84	0.1	20	0725	189	467	4.06	100.0	6	119
10		51.	9 20	NH	84	0.1	20	0155	216	422	5.12	100.0	2	251
		32.		NHI	84	0.1	19	1930	191	452	4.23	100.0	9	84
9	100.0	12.	0 40.	HN	84	0.1	19	1316	211	418	5.04	100.0	58	ω
0		52.	5 49	E	84	0.1	21	2307	36	87	4.11	100.0	48	191
		46.	6 00.	NH	84	0.1	22	0145	204	405	5.04	100.0	4	cc
	0	36.	6 1 9	HN	84	0.1	22	0550	187	459	4.08	100.0	10	6
	2	27.	16 39.	N	84	0.1	22	0945	214	390	5.48	100.0	4	₹
0	0	17.	17 00	NII	84	0.1	22	1410	215	407	5.28	100.0	10	17
	S	07.	17	NH	84	0.1	22	1805	197	430	4.59	100.0	26	14
0	0	57.	17 37.	NH	84	01	22	2200	206	417	4.95	100.0	22	27
110.0	70.0	37	7	N	84	0]	23	0335	215	409	5.26	100.0	43	30
5	5	3												

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	Total	Eggs	7.0	105	000
	Total	Larvae	4	111	0.0
	Percent	Sorted	100.0	100.0	0 001
Stand- ard	Haul	Factor		4.47	
Vol. Water	Depth Strained	(cn. m)	437	440	ASE
Tow	Depth	(m)	217	197	רונ
	Time	(PST)	0915	1625	2115
	o Tow Date	yr. mo. day (PST)		NH 84 01 23	
	Ship	Code	HN	NH	NH
	· (M)	deg. min.	58.8	119 36.3	
	Lat.(N)	Line Station deg. min.	28 18.0	27 57.0	27 36.8
		Station	80.0	0.06	100.0
		Line 2	110.0	110.0 90.0	110.0

TABLE 1. (cont.)

CalCOFI Cruise 8402

Stand-

Vol.

							1					
							TOW	Water	ard			
		Lat.(N)	Long. (W)	Ship	Tow Date	Time	Depth	Strained	Haul	Percent	Total	Total
ne S	Station	deg. min.	deg. min.	Code	yr. mo. day	(PST)	(m)	(cn. m)	Factor	Sorted	Larvae	Eggs
	65.0	7 26.	23	HN	84 02 09	1035	201	482	4.17	48.9	54	89
1 0	0	7 17.	24 19.	NH	4 02 0	1520	195	456	4.28	100.0	57	80
		6 57.	25 0	HN	84 02 09	2144	202	473	4.27	100.0	2	18
	0	9	125 46.9	NH	84 02 10	0330	202	470	4.29	49.2	m	7
	0	6 16.	26	EN	84 02 10	0860	208	470	4.43	100.0	10	10
		6 52.	23	NE	84 02 11	1335	208	436	4.77	51.0	41	06
	0	6 43.	23 5	HN	84 02 11	0935	193	461	4.19	50.9	42	235
		6 22.	24 3	HN	84 02 11	0340	202	430	4.69	50.0	~	10
		6 02.	25 20.	HIN	84 02 10	2140	201	465	4.32	45.7	2	2
		5 43.	26 0	HN	84 02 10	1540	215	446	4.82	100.0	2	8
		6 16.	23	HN	84 02 11	1925	171	474	3.62	47.8	65	1158
		6 07.	23 29.	HN	84 02 11	2310	961	415	4.73	48.6	48	37
	0.08	5 47.	24	HN	84 02 12	0200	198	449	4.41	100.0	12	13
		5 26.	24 5	HN	84 02 12	1045	204	441	4.63	100.0	ω	m
	0	5 06.	25 3	HN	84 02 12	1635	193	439	4.40	100.0	7	15
	0	5 42.	22 4	HIN	84 02 13	1950	186	490	3.80	100.0	860	914
		5 32.	23	HN	84 02 13	1545	190	467	4.06	53.8	176	4855
	0	5 12.	23 4	HN	84 02 13	0860	206	460	4.49	100.0	8	1.
6	0	4 52.	24 2	HN	84 02 13	0345	196	430	4.56	51.8	11	9
		4 33.	25 1	NIB	84 02 12	2227	193	432	4.46	100.0	7	13
۳.	5.	5 08.	22 19.	NH	84 02 14	0130	212	428	4.95	100.0	12	28
0		4 58.	22 3	NH	84 02 14	0535	189	504	3.76	100.0	42	33
0	- 0	4 38.	23 22.	NH	84 02 14	1145	209	446	4.68	100.0	73	8
		4 19.	24 02	HN	84 02 14	1705	212	430	4.93	51.4	12	11
0	0.	3 57.	24 45.	HN	84 02 14	2259	185	487	3.80	100.0	23	7
- 0		4 33.	21 54.	HN	84 02 16	0305	202	418	4.84	52.0	480	19
0	70.0	4 22.	22 15.	HN	84 02 15	2310	189	469	4.03	52.3	185	112
.7	0.	4 03.	2	HN	84 02 15	1722	184	466	3.96	47.1	20	23
	0	3 43.	23 3	NH	84 02 15	1140	208	437	4.75	53.6	29	11

CalCOFI Cruise 8402

		Total	Eggs	2		77	4	Ŋ	7	13	27	25	10	∞	14	18	15	18	34	56	48	74	48	09	83	9	44	569	177	109	34	46	419
		Total	Larvae	22	65	116	3	16	20	11	17	20	78	7	13	157	14	11	19	81	12	21	35	42	38	28	40	44		35	45	26	17
		Percent	Sorted	100.0	100.0	47.6	51.5	53.0	100.0	100.0	100.0	100.0	52.6	100.0	100.0	48.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	51.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand-	ard	Hanl	Factor	3.97	4.45	4.80	3.69	4.48	3.95	5.46	4.75	4.42	5.47	4.15	4.75	4.96	5.00	4.80	4.97	7.89	5.19	3.83		3.57	4.81	4.86	5.14	4.14	4.64	3.73	5.23	4.48	4.77
Vol.	Water	Strained	(cu. m)	470	441	428	476	440	454	395	422	438	392		439	434	415	428	427	279	421	507	484	518	435	437	405	466	441	-	395	460	447
	TOW	Depth :	(皿)	187		205	175	197	179	216	201	194	215	194	208	215	207	205	212	220	218	194	211	185	209	212	208		204	192	206	206	213
			(PST)	0525	0840	1205	1640	2238	0445	1830	2	1202	2352	0525	1050	1205	0420	2256	1650	0635	1235	1755	1230	0630	2355	2028	0025	0190	1218	1745	2225	1813	1220
		Tow Date	yr. mo. day	84 02 15	84 02 16	84 02 16	84 02 17	84 02 17	84 02 18	84 02 19	84 02 19	84 02 18	84 02 19	84 02 20	84 02 20	84 02 21	84 02 21	84 02 20	84 02 20	84 02 26	84 02 26	84 02 26	84 02 27	84 02 27	84 02 26	84 02 27	84 02 28	84 02 28	84 02 28	84 02 28	84 02 29	84 02 29	84 02 29
		Ship	Code 1	HN	HIN	NH	NH	NH	NIII	NH	NH	NH	NH	HIN	NIH	HN	HN	HN	HN	HN	HN	NH	HN										
		9	deg. min.	4 2	1 2	121 51.0	2 3	3 1		22 07.	22 4	23 2	21 42.	2		2		21 5	2	20 5		122 15.9	20 29.	1 11.	1 5	906	19 26.	120 07.7	20 47.	21 26.	118 44.2	19 04.	
		Lat.(N)	deg. min.	3 23.	3 59.	3 49.	3 29.	3 09.	2 50.	2 53.	2 35.	2 14.	2 19.	1 59.	1 39.	2 04.	1 45.	1 24.	1 05.	1 11.	0 49.	30 30.2	0 35.	0 15.	9 55.	0 30.	0 19.	0 02.	9 40.	9 21.	9 57.	9 46.	9 26.
			Station	0	5.	70.0	0.	0	0	0.	0.	0.	0.	0.	0.		0.	0	0	0.	0.	100.0	0.	0.06	0.	5.	70.0		0.	0.	65.0	0.	0.
			Line		80.0	0.08	0.	0.	80.0	3	3		6.	6.	9	0.	0.	0.	0.	m.	3,	93.3	9	6.	6.	00	00.	0.	00.	00.	03.	03.	03.

TABLE 1. (cont.)

CalCOFI Cruise 8402

		Total	Eggs	18	91	149	57	93	35	84	71	205	49	70	16	
		Total	Larvae	27	22	15	5	11	30	45	8	5	4	28	24	
		Percent	Sorted	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Stand-	ard		Factor	4.45	5.55	4.25	4.41	4.71	4.12	5.03	4.80	4.09	4.18	4.04	4.66	
Vol.	Water	Strained	(cn. m)	474	397	473	472	451	493	410	446	504	491	479	463	
	TOW	Depth	(田)	211	220	201	208	212	203	206	214	206	206	193	215	
		Time	(PST)	0090	2350	0410	0828	1432	1955	0255	0935	0440	2200	1545	0845	
		Tow Date	yr. mo. day (PST)	84 02 29	84 02 28	84 03 01	84 03 01	84 03 01	84 03 01	84 03 02	84 03 03	84 03 03	84 03 02	84 03 02	84 03 02	
		Ship	Code	NH	HN	HN	HIN	HN	HN	HN	MH	HN	NH	NH	HN	
		Long. (W)	deg. min.							120 37.9						
		Lat.(N)	deg. min.				29 10.8	28 51.6	28 31.8	28 11.0		28 36.4	28 16.8	27 56.4	27 36.6	
			Line Station	0.06	100.0	0.59	70.0	0.08	0.06	100.0	0.59	70.0	80.0	0.06	100.0	
			Line 5	103.3	103.3	106.7	106.7	106.7	106.7	106.7	110.0	110.0	110.0	110.0	110.0	

CalCOFI Cruise 8403

Total Eggs	2285 206	3403 87	11 32 19	∞ ಈ ∞	7 7 7	550	1925	44	77 11	250 31 22 73
Total Larvae	433	45	238 83 96	174 83	19	1400 92 37	111 55 42	159	85	5 126 213 317
Percent Sorted	100.0	54.7 100.0 51.9	46.7 53.6 52.2	51.0 50.0	55.6	48.1 53.6 50.9	100.0	48.9 50.9 43.6	49.3	100.0 100.0 100.0
Stand- ard Haul Factor	4.75	4.83	5.04	5.42	5.38	5.29 3.56 4.84	5.11	5.31 4.38	5.14	4.15 5.18 5.07 5.37
Vol. Water Strained	91 168 228	441 61 169	425 426 401	387 411	397	402 78 437	421 60 403	406 407 127	412	52 218 84 400
Tow Depth	43	213 29 86	215 206 205	210 214 213	213	213 28 211	215 21 215 215	216 25	212 218	22 113 42 215
Time (PST)	1255 1510 1845	2325 1121 1340	1625 2155 1255	1455 0350	0137	1120 0138 0515	1200 0325 0653	1610/0640	2215 2215 1325	2315 0110 0646 1025
Tow Date yr. mo. day	84 02 09 84 02 09 84 02 09	02 0 02 1 02 1 02 1	84 02 10 84 02 10 84 02 11	84 02 11 84 02 12 84 07 12	02 1 02 1	84 02 13 84 02 14 84 02 14	02 1 02 1 02 1	84 02 15 84 02 15 84 02 16	02 2 02 1	84 02 19 84 02 20 84 02 20 84 02 20
Ship Code y	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	dr dr dr	6 6 6 6 7 8	9 9 9	9 9 9	555	G G G	3666	366	ar ar ar
Long.(W) deg. min.	122 52.9 123 03.8 123 14.7	36 28 37	122 50.1 123 11.7 121 59.1	122 03.8 122 24.9	1 43	122 21.8 121 15.2 121 28.1	57. 42. 55.	121 11.9 121 32.9 120 31.3	1 09 9 56	119 24.7 119 30.5 120 08.0 120 24.5
Lat.(N) deg. min.	56.	36. 22. 18.	12. 02. 49.	46.	10.	52. 38. 32.	18. 07. 01.	43.	09.	34 13.5 34 10.7 33 52.6 33 44.6
Station	50.0 52.5 55.0	0 0 0	5.00.9		3 - 6		0.88.		0.	40.6 42.0 51.0 55.0
Line S	60.09									83.3 83.3 83.3

CalCOFI Cruise 8403

	Total	Eggs	82	14	58	009	2202	308	1139	8	172	134	96	6	196	795	271	1442	971	57	_	219	187	9/	199	31	176	44	17	12	43	20
	Total	Larvae	26	31	45	497	183	196	1305	871	194	174	104	10	409	457	141	554	357	463	128	385	413	163	329	33	74	10	2	186	181	88
	Percent	Sorted	50.0	51.9	48.4	100.0	100.0	100.0	100.0	100.0	49.2	50.0	48.4	100.0	100.0	47.6	100.0	100.0	100.0	50.0	100.0	100.0	100.0	45.2	100.0	100.0	100.0	50.0	52.2	54.1	50.9	100.0
Stand- ard	Haul	Factor	5.34	5.45	5.08	5.18	5.63	5.30	5.26	4.27	5.69	5.53	4.86	5.18	4.77	5.07	5.44	5.37	5.40	5,39	4.88	5.91	5.42	5.60	5.83	5.55	5,86	5.53	5.40	5.31	5.10	4.92
Vol. Water	Strained	(cn. m)	401	396	424	83	377	400	398	130	382	386	444	416	118	409	390	390	396	389	66	359	380	376	362	382	359	372	394	397	409	66
TOW	Depth	(m)	214	216	215	43	212	212	210	99	217	213	216	215	99	207	212	210	214	210	48	212	206	211	211	212	211	206	213	211	209	49
	Time	(PST)	1530	0430	0000	0045	0355	1720	1120	0535	0035	1720	2140	1530	1940	2310	0504	1222	1253	1830	1000	0220	0408	1211	1315	1740	0000	0430	0817	1305	1830	1455
	Tow Date	yr. mo. day	84 02 20	84 02 24	84 02 24	84 02 27	84 02 27	84 02 29	84 02 29	84 02 29	84 02 29	84 02 28	84 02 24	84 02 24	84 03 02	84 03 02	84 03 03	84 03 03	84 03 04	84 03 04	84 03 07	84 03 08	84 03 08	84 03 07	84 03 08	84 03 08	84 03 09	84 03 09	84 03 09	84 03 09	84 03 09	84 03 13
	Ship	Code	JD	JD	JD.	JD																										
	ong.	deg. min.	0		121 26.5	8	118 37.7	æ	119 19.1		120 00.3	0	20 4	0	117 46.2	5	2	5	2	57.	18.	2	2				3.		9 1	119 34.3	120 14.9	17
	Lat.(N)	deg. min.	34.	24.	14.	53.	49.	39.	29.	19.	09.	59.	49.	39.	29.	25.	11.	55.	39.	25.	57.	54.	52.	50.	40.	30.	20.	10.	00.	50.	31 30.8	17.
		Station				33.0																					45.0	0.	5	0.	0.07	6
		Line S					0															- 0									93.3	

CalCOFI Cruise 8403

	Total	Eggs	21	7	3	11	335	91	32	10	11	18	paral(0	110	103	51	21	4	4	20	15	11	12	6	62	2	21	98	13	17	27
	Total	Larvae	115	101	241	192	151	36	29	96	58	49	37	144	200	232	37	53	7.1	47	40	25	98	89	31	11	12	28	4	109	1174	25
	Percent	Sorted	50.0	100.0	100.0	48.6	100.0	100.0	100.0	100.0	100.0	55.8	48.6	48.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	48.4	100.0	100.0	100.0	100.0	46.6	100.0	100.0	45.1	100.0	100.0
Stand	Haul	Factor	4.64	5.31	5.05	5.44	5.45	5.23	5.06	4.85	5.47	5.05	4.78	5.22	5.45	5.51	4.90	5.07	5.08	5.24	3.78	4.50	5.11	5.24	5,33	4.61	4.72	5.08	4.17	4.75	5.28	5.13
Vol.	Strained	(cn. m)	120	399	411	388	384	402	422	430	390	417	120	406	389	385	424	417	416	407	55	126	405	409	395	454	437	419	32	436	391	411
30	Depth	(m)	55	212	208	211	209	210	214	208	213	211	57	212	212	212	208	211	212	213	21	99	207	215	211	209	206	213	13	207	206	211
	Time	(PST)	1615	1823	2305	0325	0755	1205	1655	2300	0340	0805	2320	2125	1530	1024	0548	00200	2005	1540	0418	0090	1032	1520	2010	0000	0525	1000	1523	1335	1010	0545
	Tow Date	yr. mo. day	84 03 13	84 03 13	84 03 13	84 03 14	84 03 14	84 03 14	84 03 14	84 03 14	84 03 15	84 03 15	84 03 16	84 03 16	84 03 16	84 03 16	84 03 16	84 03 16	84 03 15	84 03 15	84 03 17	84 03 17	84 03 17	84 03 17	84 03 17	84 03 18	84 03 18	84 03 18	84 03 22	84 03 22	84 03 22	84 03 22
	Ship		JD	J.D	JD																											
	Long. (W)		117 08.8		117 29.2		118 09.8	118 29.0	118 50.3	9.01 611	119 30.6	119 50.8	116 43.4	116 46.6		117 27.3	117 47.2	118 07.3	118 27.5	118 47.5	116 20.5	116 24.5		117 04.7	117 24.7	117 44.7	118 04.7	118 24.9	116 05.8	116 09.8	116 21.1	116 41.6
	Lat. (N)	deg. min.	15.	11.	05.	55.	45.	36.	25.	15.	05.	55.	42.	4].	31.	31 21.4	11.	01.	51.	41.	08.	.90	56.	46.	36.	26.	30 16.9	.90	29.	27.	20.	30 11.5
		Station	30.0	2		0	10	0.	5.	0.	5 .	0.	9	0		0	5.	0.	5.	0.		0.		40.0		0.	55.0	0.	31.0	2.	5.	40.0
		Line S	7.96			6.	7.96	9	9	9	0	9	100.0	00.			100.0	100.0	100.0	100.0	103.3		- 0	103.3	103.3	103.3	103.3	103.3	1.901	106.7	6.	

TABLE 1. (cont.)

CalCOFI Cruise 8403

		Total	Eggs	24	64	72	18	4	27	4	5	21	1	20
		6	Larvae	64	61	14	18	21	137	12	57	53	17	3
		Percent	Sorted	100.0	100.0	100.0	100.0	48.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand-	ard	Hanl	Factor	4.36	5.52	5.55	5.44	4.92	5.21	5.20	5.42	5.18	5.01	2.06
Vol.	Water	Strained	(cn. m)	483	386	389	392	100	405	403	391	408	430	416
	TOW	Depth	(m)	211	213	216	213	49	211	210	212	211	215	210
		Time	(PST)	0057	2110	1700	1305	0917	1206	1635	2015	2355	0330	0715
		Tow Date	yr. mo. day	84 03 22	03	84 03 21	03	84 03 20	03	03	03	03	03	84 03 21
			Code	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD
		Long. (W)	deg. min.											117 38.7
		Lat. (N)	deg. min.			29 41.5							29 07.2	28 57.2
			Station	45.0	50.0	55.0	0.09	32.5	35.0	40.0	45.0	50.0	55.0	0.09
			Line S	106.7	106.7	106.7	106.7	110.0	110.0	110.0	110.0	110.0	110.0	110.0

CalCOFI Cruise 8404

Total	24	13	5 1 10	1 7	7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	13 3 17 11	54 176 18 18	29 28 80 6
Total Larvae	2 15	29 120 44 4	3 3 18	8 P P	18888	10 16 1 17 32	18 17 10 16	106 23 25 26
Percent	100.0	50.0 50.0 51.4	50.0 52.6 50.9	48.8 49.1 49.3	51.6 51.1 52.6 53.3	49.5 51.4 50.0 51.1		50.3 49.7 48.0 100.0
Stand- ard Haul Factor	4.38	5.20 5.06 5.55 4.91	4.96 5.73 5.74	4.92 5.15 5.34	5.98 5.78 5.54 5.22	6.06 5.47 4.49 5.35	4 4 4 4	4.85 4.94 5.25 4.96
Vol. Water Strained (cu. m)	170	203 409 382 163	418 374 365	168 386 390	357 370 379 398	342 393 79 397	402 59 415 410	426 419 403 430
Tow Depth 9	35	207 207 212 80	207 214 210	83 199 208	214 214 210 208	207 215 35 213 219	205 21 213 216	206 207 212 213
Time (PST)	0955	0325 0325 0305	0545 0930 1525	2045 1935 1635	1300 0640 1310 1520	1925 0040 1220 1602 2250	4 13	1945 1225 0525 2250
Tow Date yr. mo. day	04	84 04 30 84 04 30 84 04 29 84 04 29	4 04 2 4 04 2 4 04 2	84 04 28 84 04 28 84 04 28	84 04 28 84 04 28 84 04 27 84 04 27	84 04 27 84 04 28 84 04 22 84 04 22 84 04 22	4 04 2 4 04 2 4 04 2 4 04 2	84 04 21 84 04 21 84 04 21 84 04 20
Ship Code y	dr dr	3 6 6 6	ar ar ar	95 95 95	ar ar ar	99999	9999	
Long.(W) deg. min.	2 53 3 03	2222	22 50. 23 11. 23 54.	121 59.1 122 03.4 122 24.9	122 46.4 123 29.1 121 43.6 121 52.1	22 22 22 23 23 04 21 15 28 21 28 21 27	22 39. 20 42. 20 55. 21 11.	121 33.0 122 14.9 122 56.4 123 38.2
Lat.(N) deg. min.	56.	36.	12.	49.	27. 07. 10. 06.	87877	58. 07. 01. 53.	43. 03.
Station	0.	55.0 60.0 70.0 52.0		49.0 50.0 55.0	60.0 70.0 51.0 53.0		0. 8. 1.	60.0 70.0 80.0 90.0
Line S	000	0 0 0	m m m	6.	6.0	70.0 70.0 73.3 73.3	3.	6.

TABLE 1. (cont.)

CalCOFI Cruise 8404

[a + c)	Eggs	C	97		13	15	14	12	29	26	1.1	9661	98	10	5	25	31	38	178	72	1364	96	17	110	12	53	37	11	39	37	06	24
[c + c E	Larvae	0	10	י ניי	33	33	25	16	1.1	17	34	357	333	8	40	17	12	22	41	123	176	257	125	294	95	147	150	19	22	18	26	16
d constant	Sorted	000	0.001	0.05	100.0	52.4	52.0	50.0	100.0	100.0	100.0	100.0	49.1	51.8	51.7	49.2	50.0	51.9	100.0	100.0	52.9	50.0	51.4	47.8	52.9	52.6	49.0	51.7	52.6	50.9	100.0	100.0
Stand- ard	Factor	-	01.4	4.1/	5.22	5.08	5.28	4.68	4.96	5.03	5.28	4.27	4.62	4.83	5.47	5.54	5.30	5.49	5.45	5.34	4.77	5.20	5.42	5.01	4.72	5.28	5.13	5.56	5.24	5.15	5.32	3.89
Water	(cu. m)	6	443	14/	413	415	382	457	422	423	400	99	180	176	396	391	396	393	386	390	114	397	398	427	152	405	410	382	401	411	400	459
Tow	Uepth (m)	,	717	19	215	211	202	214	210	213	211	28	83	85	217	216	210	215	210	208	54	206	216	214	72	214	210	213	210	212	212	179
	(PST)	4	1640	1152	1500	1850	1825	1955	0220	0855	0620	0222	0058	1930	1655	1240	0602	0025	1840	1805	0410	0020	1330	1130	1505	0710	1145	1730	2335	0548	1215	1530
	Tow Date yr. mo. day	•	4	4	84 04 17	84 04 17	84 04 18	84 04 19	84 04 20	84 04 20	84 04 17	84 04 17	84 04 17	84 04 16	84 04 16	84 04 16	84 04 16	84 04 16	84 04 15	84 04 14	84 04 10	84 04 10	84 04 10	84 04 11	84 04 11	84 04 13	84 04 13	84 04 13	84 04 13	84 04 14	84 04 14	84 04 09
	Ship Code		dr.	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	370	JD	dr	JD	JD	JD	JD	NH									
	Long.(W) deg. min.		4	0	0 4	_	1 5	2 3	23 1	3 5	5	9 2	9 30	0 0	0 2	0 4	1 2	2 0	2 4	3 2	2	8 38.	8 5	9 1	119 39.8	0 0	120 21.2	0	1 4	22 2	123 04.2	17 4
•	Lat.(N) deg. min.		23.	27.	19.	.60	49.	29.	09.	49.	16.	13.	12.	52.	44.	34.	15.	54.	34.	14.	53.	49.	39.	29.	19.	09.	59.	39.	19.	59.	6	29.
	Station			- 0							46.				- 4				- 0										0.08	0.06	100.0	28.0
	Line S		76.7	0	80.0	0			0		- 6	- 0		3	3		E,	n	0	e.	86.7	6.	6.	6.	- 0			6.		6.	86.7	0

CalCOFI Cruise 8404

	Total	Eggs	17	35	112	0	49	108	0	17	11	129	104	66	233	27	630	48	00	14	44	17	4	1 . 7	184	20	11	52	28	42	1	9
	Total	Larvae	53	122	135	134	32	98	46	422	84	44	395	151	270	23	12	5	22	12	13	12	12	492	168	84	111	22	39	28	4	11
	Percent	Sorted	48.1	0	47.2	50.0	51.4	100.0	51.9	100.0	52.9	100.0	100.0	48.3	51.9	46.7	100.0	100.0	48.4	100.0	100.0	48.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	49.2	52.1
Stand- ard	Haul	Factor	4.53	5.04	4.40	4.18	3.19	4.88	3.58	5.15	4.22	4.61	4.57	90.5	4.65	4.84	5.23	4.53	3.95	4.92	3.75	4.26	4.29	4.90	4.98	4.82	2.00	4.57	4.66	4.71	4.99	4.30
Vol.	Strained	(cn. m)	440	422	438	467	526	438	134	415	437	422	421	407	418	430	404	456	489	430	492	101	100	428	411	437	439	443	458	457	434	445
TOW	Depth	(m)	199	212	193	195	168	214	48	214	184	195	192	206	194	208	212	207	193	212	184	43	43	210	205	211	219	203	213	215	217	191
	Time	(PST)	1830	2220	0155	0615	1215	0835	1555	1825	1805	1240	0835	0430	0015	2000	1605	0944	0335	2110	1450	0640	0833	1027	1430	1850	2250	0315	0740	1054	1820	0025
	Tow Date	yr. mo. day	84 04 09	84 04 09	84 04 10	84 04 10	84 04 12	84 04 13	84 04 16	84 04 16	84 04 15	84 04 15	84 04 15	84 04 15	84 04 15	84 04 14	84 04 14	84 04 14	84 04 14	84 04 13	84 04 13	84 04 17	84 04 17	84 04 17	84 04 17	84 04 17	84 04 17	84 04 18	84 04 18	84 04 18	84 04 18	84 04 19
	Ship	Code	HN	HN	HIN	HN	HN	NH	HN	HN	HN	HN	MH	HN	HN	HN	HIN	HIN	NH	HH	NH	NH	NH	NH	HN	HN	NH	NH	NH	HN	HN	HN
	•	deg: min.	117 54.5	118 15.2	118 24.3	118 56.2	120 38.6	122 39.4	117 18.3	117 28.0	117 32.0	117 52.6	118 12.9	118 33.4	2	٦	3	120 19.9	120 55.2	121 35.5	122 15.3	117 04.8	117 08.8	117 17.0	117 29.4	117 49.8	0	118 30.4	118 51.0	119 10.5		120 30.7
	Lat.(N)	deg. min.	24.	15.	\vdash	55.	04.	04.	57.	52.	50.	40.	30.	20.	10.	00.	50.	31.	10.	50.	30.	17.	15.	11.	05.	55.	45.	35.	25.	15.	55.	35.
		Station	30.0	35.0	37.0	45.0	70.0	100.0	26.7	29.0	30.0	35.0	40.0	45.0	20.0	55.0	0.09	70.0	80.0	0.06	100.0	29.0	30.0	32.0	35.0	40.0	45.0	20.0	55.0	0.09	70.0	80.0
		Line S	0	0.	0.06	0.	0.	0.	3	3	3	m	3	3	3	3	3	ä	e e	3	8	9	9	9	9	ê.	ė	ů	9	ů	ů	ů

CalCOFI Cruise 8404

								Vol.	Stand-			
							TOW	Water	ard			
		Lat.(N)	Long. (W)	Ship	Tow Date	Time	Depth	Strained	Haul	Percent	Total	Total
Line	Station	deg. min.	deg. min.	Code	yr. mo.	day (PST)	(m)	(cn. m)	Factor	Sorted	Larvae	Eggs
9	0	0 15.	121 10.8	HN	84 04 19	9 0640	222	413	5.37	100.0	19	68
9	0	9 2 6	1 50	HN	4 04 1		208	437	4.77	100.0	18	130
00	29.2	2	9	NH	84 04 22	1050	85	174	4.86	51.7	7	6
0	0	1 41.	46	HN	84 04 22	0880	208	430	4.83	46.2	9	3
00	5.	1 31.	117 07.1	HN	84 04 22	0450	197	439	4.50	100.0	173	11
00.	0	1 21.		HN	84 04 22	0015	211	406	5.19	51.4	18	8
00.		1 11.		HN	84 04 21	1 2005	209	444	4.71	100.0	16	10
0	0.	1 01.	118 07.2	HN	84 04 21	1600	210	434	4.83	100.0	27	178
00.		0 51.	118 27.1	HN	84 04 21	1025	205	445	4.61	100.0	26	1288
00.	0.	0 40.	118 48.0	HN	84 04 21	1 0735	194	480	4.03	100.0	11	130
00.	0.	0 01.	0 07	HN	84 04 20	0830	208	503	4.13	100.0	0	11
00.	0	9 41.	120 48.4	NH	84 04 20	0140	209	469	4.44	100.0	0	17
00.	0	9 21.	1 27	HN	84 04 19	0161 6	213	438	4.87	100.0	16	551
03.	9	1 08.	9	HN	84 04 22	2 1915	27	72	3.74	100.0	7	1
03.	30.0	1 06.	116 24.2	HN	84 04 22	2 2035	42	66	4.29	100.0	169	13
03.	5.	0 56.	116 44.7	NH	84 04 2:	3 0030	208	429	4.84	100.0	30	3
		0 47.		HN	84 04 2:	3 0450	198	446	4.44	54.1	9	2
03.	5	0 36.	117 24.6	HN	84 04 2	3 0855	217	417	5.21	100.0	91	9
03.	- 0	0 26.	117 44.7	NH	84 04 2:	3 1400	204	405	5.04	100.0	14	80
03.	5	0 17.	118 03.9	HIN	84 04 2:	3 1825	204	418	4.88	100.0	14	88
103.3	0.09	0	118 24.7	NH	84 04 2.	3 2240	211	432	4.90	100.0	ω	58
		9 46.	119 04.4	HIN	84 04 2	4 0540	196	457	4.30	100.0	9	42
	80.0	9 26.		HN	84 04 2	4 1055	203	376	5.39	100.0	0	85
	0.06	9 06.		MH	84 04 2	4 1745	199	459	4.34	100.0	4	460
		8 46.		NH	84 04 2	4 2340	212	444	4.78	100.0	3	1254
		0 29.	116 05.8	HIN	84 04 27	7 1335	1.5	59	2.48	100.0	0	400
106.7		0 27.		NH	84 04 2	7 1120	212	421	5.03	100.0	20	20
	5 •	0 21.	116 21.7	NH	84 04 2	7 0755	213	418	5.10	100.0	25	5
06.	0	0 11.		HN	84 04 2	7 0335	202	430	4.69	100.0	25	5
106.7		0 01.	117 01.8	NH	84 04 2	6 2315	213	453	4.70	100.0	22	16

CalCOFI Cruise 8404

	D 00 1 01
Total Eggs 67 407 392 7 108	40 39 97 26 750 332 175
otal Larvae 5 3 3 1 1 10 2	41 16 7 7 40 239 31 46
Total Larvi	
Percent Sorted 100.0 100.0 100.0 100.0	100.0 100.0 100.0 100.0 100.0 100.0
Per So 30 10 10 10 10 10 10 10 10 10 10 10 10 10	
Stand-ard Haul Factor 5.57 4.41 3.68 3.50 4.74 4.74	4 4 4 6 6 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9
Vol. tater rained cu. m) 395 479 494 58 465 4435 459	435 444 450 434 420 411 441
Vol. Water Strained (cu. m) 395 479 494 58 465 4459	* * * * * * * * *
Tow Depth (m) 220 211 182 20 208 208 206 218	215 207 201 213 204 211 203
Tow Date Time yr. mo. day (PST) 84 04 25 1025 84 04 25 0540 84 04 27 1805 84 04 27 2050 84 04 28 0550	1015 1405 1825 2155 0205 0800 1410
te day 26 25 25 27 27 27 28	288 228 229 229
Da mo. 04 04 04 04 04 04 04	004 004 004 004
TOW YI. 84 84 84 84 84	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Ship Code NH NH NH NH NH NH	
min. 21.6 59.7 38.4 49.5 20.0	59.6 18.8 38.6 58.6 118.4 57.2 36.4
on •	116 1117 1117 1118 1118 1119 1119
,	
Lat.(N) deg. mii 29 51.2 28 31.2 28 11.6 29 52.4 29 47.0 29 37.5	16.7 07.2 57.2 47.5 37.3 17.3 57.1
Lat.(N) deg. min 29 51.2 28 31.2 28 11.6 29 52.4 29 47.0 29 37.5	
tation 50.0 90.0 100.0 32.4 35.0 40.0	50.0 60.0 65.0 770.0 80.0
Line Station 06.7 50.0 06.7 90.0 06.7 100.0 10.0 32.4 10.0 35.0	110.0

TABLE 1. (cont.)

CalCOFI Cruise 8405

		Total	Eggs	0	9	0 0	4 0	6	36	7	9	2	7	9	m	8	18	11	7	0	_	2	0	134	57	21	47	4	2	2	10	1.0	11
		Total	Larvae	~	17	14	# C	-	45	7	7	0	c	13	8	17	16	8	15	2	n	18	18	16	21	13	21	4	4	6	23	7	15
		Percent	Sorted	100 0	47 1	AO F	40.0	20.6	50.0	100.0	100.0	100.0	50.0	50.2	49.4	49.9	51.9	51.1	52.3	48.9	51.4	52.8	49.1	52.9	47.7	100.0	100.0	51.1	50.2	20.7	49.4	20.0	20.7
Stand-	ard	Hanl	Factor	9 L	A 70	000	00.0	2.17	5.02	4.76	4.91	4.21	5.14	5.43	5.69	5.97	5.67	5.41	5.17	5.95	5.26	5.40	5.18	2.67	5.26	4.97	5.01	5.29	99°5	5.39	5.56	4.65	90°5
vol.	Water	Strained	(cu. m)	101	178	0/1	/91	401	415	433	429	64	163	391	362	360	369	392	408	118	319	402	406	371	397	431	425	404	370	397	372	434	415
	TOW	Depth	(田)	4.2	7 7	לי כ כ	S C	208	208	206	210	27	84	212	206	215	209	212	211	70	167	217	210	210	209	214	213	214	210	214	207	202	210
		Time	(PST)	0001	1700	00/1	0161	0210	2330	1810	1300	0425	0550	0810	1323	1845	0030	0090	11115	0420	0250	2230	1840	1245	0550	2300	1720	0980	0535	1015	1640	2200	0345
		Tow Date	yr. mo. day	•	1 1 10	000	05 L	84 05 18	84 05 17	84 05 17	84 05 17	84 05 19	84 05 19	84 05 19	84 05 19	84 05 1.9	84 05 20	84 05 20	84 05 20	84 05 22	84 05 22	84 05 21	84 05 21	84 05 21	84 05 21	84 05 20	84 05 20	84 05 22	84 05 23	84 05 23	84 05 23	84 05 23	84 05 24
		Ship	Code	-	3 5	25	JD	JD	JD	JD	JD	JD	JD	J.D	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD
		Long. (W)			70 77	23 0	23 1	24 2	25	25	26	22	22	22	23	23	24 3	2	26	21	22	122 25.0	22 4	23		24	25	21	21 5	22	23	123 46.6	
		Lat. (N)	deg. min.	r.	7 55	15/	7 47	7 16	95 9	98 9	6 17	7 22	7 18	7 12	7 02	6 42	6 22	6 02	5 42	6 4 9	6 47	6 37	6 27	36 07.1	5 47	5 27	5 07	01 9	90 9	5 52	5 32	5 12	4 52
			Station		50.0	N	5	0	0	0	0	0	52.0	5	0	0	0	0	100.0	9	0	- 20	0.09	70.0	0	0.06	0	51.0	\sim	0.09	70.07	80.0	0.06
			Line S		0	0	0.09	0.09	0.09	0	0	3	3	ω.	3	3	<u>س</u>	m m	3	9	9	9	9	9	6	66.7	9	70.0	0	70.07	0.	0	0.07

CalCOFI Cruise 8405

	Total	Eggs	6	0	80	2	4	c	7	0	12	m	16	223	252	0	22	0	2	19	10	25	23	759	156	180	9	0	10	14	7	12
	Total	Larvae	7	7	15	2	8	വ	12	6	4	10	1.9	10	21	8	28	25	16	1	12	20	13	13	11	7	11	17	14	5	6	26
	Percent	Sorted	100.0	49.1	49.4	50.9	48.8	48.7	49.5	52.0	50.0	49.8	50.4	51.2	46.4	48.4	52.7	50.0	48.8	50.3	49.4	47.9	46.8	100.0	100.0	46.7	100.0	50.8	51.2	50.0	49.3	52.9
Stand- ard	Haul	Factor	4.57	4.18	5.07	4.85	4.31	3.87	5.16	5.19	5.67	4.45	5.49	4.83	4.98	5.08	5.23	5.53	5.11	5.36	4.80	5.39	5.26	4.17	5.42	90.5	5.21	5.32	5.59	5.24	5.13	5.59
Vol. Water	Strained	(cu. m)	463	55	406	431	463	54	411	414	374	455	385	427	417	126	403	380	403	392	418	394	401	99	261	153	395	391	375	399	401	378
TOW	Depth	(m)	212	23	206	209	200	21	212	215	212	203	211	206	207	64	211	210	206	210	200	212	211	27	141	77	206	208	210	209	206	211
	Time	(PST)	0915	0130	2230	0935	2240	0630	0845	1235	1645	2155	0300	0800	1425	0015	2110	1750	1235	0020	0110	2005	0450	0830	0955	1530	1825	2145	0325	0880	1410	1910
	Tow Date	yr. mo. day	84 05 24	84 05 26	84 05 25	84 05 25	84 05 24	84 05 26	84 05 26	84 05 26	84 05 26	84 05 26		84 05 27	84 05 27	84 05 29	84 05 28	84 05 28	84 05 28	84 05 28	2	2	2	84 05 29	84 05 29	84 05 29	84 05 29	84 05 29	84 05 30	84 05 30	84 05 30	84 05 30
	Ship	Code	J.D	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	GS.	GF.	S.	dr.	GF.	JD	J.D	JD	JD	dr.								
	Long. (W)	deg. min.	5 1		121 28.2		2	2	2	121 11.7	2	22 1	22 5	2	24 1	2	20 4	21 0	21 5	2	23 1	23 5	19 5	119 24.8	119 30.0	120 08.0	0 2	20 4	121 26.5	2	22 4	2
	Lat.(N)	deg. min.	4 32.	5 38.	5 32.	4 58.	4 18.	5 07.	5 01.	4 53.	4 43.	4 23.	4 03.	3 43.	3 23.	4 26.	4 19.	4 09.	3 48.	3 28.	3 08.	2 49.	4 16.	4 13.	4 10.	33 52.7	3 44.	3 34.	3 14.	2 54.	2 34.	2 14.
		Station			53.0				51.0	55.0			- 6			51.0				0.		0.	6.		2.	51.0		0.	0	80.0	0.	100.0
		Line	0	3	3	e,	c,	9	9	9	9	9	9	6.	9	0	0.	0	0.	0	0.	0.	2	3	ä	83.3	3	3.	3	3.	3.	œ.

CalCOFI Cruise 8405

		Total	Eggs	20	23	E	13	2	1	116	14	14	25	8
		Total		16	10	12	4	6	4	44	15	12	13	40
		Percent	Sorted	51.5	47.1	100.0	53.8	100.0	100.0	49.7	49.4	49.7	51.3	52.1
Stand-	ard	Hanl	Factor	5.13	5.22	5.20	5.20	4.53	5.15	5,38	5,33	5.08	5,35	5.21
voi.		Strained		84	403	395	397	137	408	392	391	412	396	406
	TOW	Depth		43	210	205	206	62	210	211	209	209	212	211
		Time	(PST)	2040	1825	1435	1045	0750	0445	0040	1905	1330	0715	0135
		Tow Date	yr. mo. day	84 06 01	90	90	90	90	84 06 01	90	0.5	0.5	90	84 05 31
		Ship	Code						JD					JD
		Long. (W)	deg. min.	118 29.3	118 37.7	118 58.5	119 19.0	119 39.8	120 00.4	120 21.0	121 02.0	121 42.9	122 23.6	123 04.2
		Lat.(N)	deg. min.	33 53.3					33 09.6					
			Line Station	33.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	80.0	0.06	100.0
			Line S	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7

CalCOFI Cruise 8406

Stand-

Vol.

	Total	e Eggs	849	7	٦	7	28		10		13	8	99	81	4	42	7	. 3	5 2) 2	4	3 97			9 289	14		9 70	7	3	0
	Total	Larvae	99	16	.2	9	33	4	4	17	15	8	14	10	1	2	10	11	9	10	6	28	15		6	10	7	01		3	12
	Percent	Sorted	50.0	50.8	49.1	51.1	49.1	48.9	53.3	50.0	49.3	49.2	51.7	51.9	51.0	48.3	100.0	100.0	51.4	53.2	51.0	50.5	52.3	50.6	48.8	51.6	50.6	53.1	51.4	100.0	48.6
ard	Haul	Factor	4.74	5.12	4.94	5.04	4.99	4.70	4.96	4.11	4.99	5.06	5.28	4.18	5.40	5.12	4.90	4.49	5.02	4.49	4.80	5.40	4.57	4.92	4.69	4.95	4.99	5.04	4.69	4.37	4.42
Water	Strained	(cu. m)	104	418	426	429	417	446	444	465	423	421	404	121	392	408	428	447	419	455	439	403	437	436	432	433	98	103	438	456	465
TOW	Depth	(m)	49	214	210	216	208	209	220	191	211	213	213	50	212	209	209	201	210	205	211	217	200	214	203	214	43	52	205	199	206
	Time	y (PST	1945	2150	0135	0355	1200	1155	1615	0010	2200	0310	0815	1520	1940	1800	1145	0740	0355	0015	2045	1710	1200	0610	0055	1930	1740	1835	2000	2240	0205
	Tow Date	yr. mo. day	84 06 19	84 06 19	84 06 20	84 06 20	84 06 20	84 06 21	84 06 21	84 06 22	84 06 22	84 06 23	84 06 23	84 06 1.9	84 06 18	84 06 18	84 06 18	84 06 18	84 06 18	84 06 18	84 06 17	84 06 17	84 06 17	84 06 17	84 06 17	84 06 16	84 06 14	84 06 14	84 06 14	84 06 14	84 06 15
	Ship	Code	HN	HN	NH	HN	HN	NH	NH	NE	HN	NH	NE	HN	HN	HN	HN	HN	HIN	HN	NH	HN	HIN	HIN	HIN	HN	HN	HN	EN	HN	NH
	Long. (W)		117 45.5	117 54.5	118 14.7	118 23.3	118 56.3	119 29.0	119 57.7	120 38.5	121 19.3	2	122 38.8	117 18.3	117 28.0	117 31.9	117 52.4	118 13.0	118 33.2	118 53.4		119 34.7	120 14.3	120 55.2	121 35.3	122 15.1	117 05.1	117 18.8	117 16.9	117 29.5	117 49.9
	Lat.(N)	deg. min.	28.	30 24.9	14.	11.	55.	39.	25.	05.	44.	25.	05.	57.	52	50.	40.	30.	20.	10.	01.	50.	31.	10.	50	30.	32 17.4	32 15.4	7	05.	Ιζ
		Station	∞	30.0	5	37.0	45.0	53.0	0.09	0	80.0	0.06	100.0	26.7	29.0	30.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	80.0	0.06	100.0	29.0		32.0	35.0	
		Line S	0		0	0	0	0.	0.	0	0	0	0	3	E	6	3	e.	S.	č	c,	3	3	33	S.	e.	7.96	6.	9	7.96	Ġ

CalCOFI Cruise 8406

	Total	Eggs	4	3	11	4	58	62	109	170	30	7		2	11	9	14	09	153	666	1387	313	115	32	5	19	14	57	88	186	966	155
	Total	Larvae	8	М	13	9	17	20	18	6	6	17	-	3	6	18	9	2	49	85	73	10	Э	0	7	5	20	13	9	25	5.7	126
	Percent	Sorted	100.0	100.0	100.0	100.0	53.2	51.5	100.0	48.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1.00.0	100.0	100.0	100.0	100.0	50.0	51.4	100.0	100.0	100.0	100.0
Stand- ard	Hanl	Factor	4.87	4.72	4.72	4.99	5.18	4.70	4.82	4.82	4.87	5.13	4.84	4.38	4.75	4.93	4.87	4.85	5.01	4.92	4.61	4.37	2.72	3.46	4.55	4.77	4.62	4.49	4.81	5.02	5.25	4.84
Vol. Water	Strained	(cu. m)	424	446	440	439	408	437	439	425	311	417	429	465	441	428	433	434	420	427	447	474	75	146	450	437	451	466	445	419	421	446
Tow	Depth	(m)	207	210	208	219	211	206	212	205	151	214	208	203	210	211	211	210	210	210	206	207	20	50	205	208	208	209	214	210	221	216
	Time	(PST)	0525	0880	1225	1550	2155	0305	0830	1405	1230	1105	0710	0315	2340	2015	1650	1325	0800	0230	2105	1535	1220	1340	1705	2050	0015	0340	0710	1100	1635	2150
	Tow Date	yr. mo. day	84 06 15	84 06 15	84 06 15	84 06 15	84 06 15	84 06 16	84 06 16	84 06 16	84 06 14	84 06 14	84 06 14	84 06 14	84 06 13	84 06 13	84 06 13	84 06 13	84 06 13	84 06 13	84 06 12	84 06 12	84 06 10	84 06 10	84 06 10	84 06 10	84 06 11	84 06 11	84 06 11	84 06 11	84 06 11	84 06 11
	Ship	Code	HN	HN	HIN	NH	HIN	NH	HIN	HIN	NE	HIN	NH	NH	NH	HHN	HN	HIN	NH	HN	NH	NH	HN	NH	HN	HIN	HN	NH	NH	INTE	HIN	HN
	Long. (W)	deg. min.	18 1	18 3	18 5	19 10	19 50.	20	21	21 50	16 44.	16 4	17	17	17	18	18	18	1.9	20	120 47.0	21 26	16 20.	16	16 44.		₹	17 4	18 0	18 24.	119 04.3	19 44.
	Lat.(N)	deg. min.	45.	35.	25.	15.	55.	35.	15.	55.	42.	41.	31.	21.	11.	00.	51.	41.	21.	01.	\vdash	21.	08.	.90	56.	46.	36.	26.	17.	07.	47.	26.
		Station					70.0							0							0.06	0.	9.	0.	5.	0.	5.	0.	5.	0.	70.0	0
		Line S					7.96				.00	00	00	.00	00.	00.	00.	00.	00.	00	100.0	00.	03.	03.	3		6	03.	03.	03.		03.

CalCOFI Cruise 8406

	Total	Eggs	786	823	100	2	5	2	126	144	152	493	510	251	236	00	4	37	114	110	588	343	1096	1318	819	374	1047
	Total	Larvae	21	19	0	1	1	15	23	20	S	8	20	34	32	3	0	59	48	36	39	62	29	7	2	94	180
	Percent	Sorted	100.0	100.0	100.0	50.9	49.0	100.0	100.0	51.7	46.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand- ard	Haul	Factor	4.79	4.71	3.63	4.49	4.24	5.21	4.92	5.01	4.60	7.05	4.66	4.57	4.91	3.88	4.95	5.32	4.89	5.02	5.24	5.30	4.98	5.56	4.57	5.31	5.02
Vol.	Strained	(cu. m)	431	453	37	222	472	411	437	421	453	316	461	451	437	73	424	393	422	407	405	404	419	388	454	404	421
TOW	Depth	(m)	207	213	13	100	200	214	215	211	208	223	215	206	215	28	210	209	206	205	212	214	208	216	208	215	211
	Time	(PST)	0335	0940	0110	0150	0155	2135	1735	1330	0810	0344	2155	0160	0235	1455	1830	2320	0425	0825	1300	1715	2115	0110	0220	1355	2000
	Tow Date	yr. mo. day	84 06 12	84 06 12	84 06 10	84 06 10	84 06 10	84 06 09	84 06 09	84 06 09	84 06 09	84 06 09	84 06 08	84 06 08	84 06 08	84 06 05	84 06 05	84 06 05	84 06 06	84 06 06	84 06 06	84 06 06	84 06 06	84 06 07	84 06 07	84 06 07	84 06 07
	Ship	Code	HIN	HN	HIN	NH	HN	HN	HN	HN	HIN	HN	NH	NH	HN	HN	HN	NH	NH	HN	HN	HIN	HN	HN	HN	NH	NH
	Long. (W)	deg. min.	120 23.7	121 03.4	116 05.8	116 09.8	116 21.9	116 41.6	117 01.6	117 21.6	117 42.0	118 01.4	118 41.1	119 59.8	120 38.1	115 49.5	116 00.0	116 19.6	116 39.3	116 59.2	117 19.2	C	117 59.1	118 17.5	118 58.0	119 36.3	120 15.6
	Lat.(N)	deg. min.	.90	28 46.9		27	21	30 11.4	30 01.5	29 51.7	41	31	6	31	8 11	52	29 47.2	9 37	27	9 17	29 07.1	8 57	8 47	8 37	16.	1	27 37.2
		Station	0.06	100.0	31.0	32.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	0.06	100.0	32.4	35.0	40.0	45.0	0.05	55.0	0.09	65.0	70.0	0.08	0.06	100.0
		Line	103.3	103.3	106.7	106.7	106.7	106.7	1.06.7	106.7	106.7	106.7	106.7	106.7	106.7	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0

TABLE 1. (cont.)

CalCOFI Cruise 8407

	Total	sbba	36	20	13	4	0	0	11	23	80	122	153	5	2	m	2	17	110	75	2	٦	0	0	5	18	4	3	3	5	٦
	Total	Larvae	3	10	41	4	6	m	23	33	47	11	36	0	20	7	4	8	40	31	7	2	5	14	æ	27	5	8	2	12	11
	Percent	Sorted	50.0	51.3	47.4	48.5	52.1	51.7	48.9	51.1	52.6	50.0	47.5	50.0	50.3	50.3	55.8	100.0	9.05	50.0	52.8	52.1	49.7	49.2	45.5	100.0	50.7	100.0	52.1	49.7	20.7
Stand- ard	Hanl	Factor	4.90	5.08	3.90	4.98	5.15	5.21	5.19	5.15	4.57	5.01	5.52	5.41	5.61	5.43	5.19	5.14	5.59	5.36	5.17	5.04	5.41	5.94	2.66	5.29	5.20	5.18	5.81	5.22	5.27
Vol. Water	Strained	(cn · m)	75	141	269	428	404	400	410	410	63	156	388	395	391	399	415	410	381	372	410	395	388	364	373	402	395	410	370	390	398
Tow	Depth	(田)	36	71	105	213	208	209	213	211	29	78	214	214	219	217	215	211	213	199	212	199	210	216	211	212	205	213	215	203	210
	Time	(PST)	2140	2330	0125	0150	1020	1605	2305	0440	1640	1520	1255	0920	0320	2130	1545	0945	2035	2300	0240	0620	1138	1708	2220	0405	1520	1215	0800	0150	1957
	Tow Date	yr. mo. day	84 07 27	84 07 27	84 07 28	84 07 28	84 07 28	84 07 28	84 07 28	84 07 29	84 07 27	84 07 27	84 07 27	84 07 27	84 07 27	84 07 26	84 07 26	84 07 26	84 07 24	84 07 24	84 07 25	84 07 25	84 07 25	84 07 25	84 07 25	84 07 26	84 07 24	84 07 24	84 07 24	84 07 24	84 07 23
	Ship	Code y	G.	JD	dr.	JD	J.D	JD	30	JD	JD	d's	JD	J.D	dr.	JD	JD	ar													
	Long. (W)	deg. min.	122 52.9	23	123 14.7	(+)	124 19.9	125 03.0	125 46.3	126 29.0	122 28.4	122 37.1	22 5	123 11.7	23 5	124 37.7	125 20.5	26	121 59.1	122 03.4	22	122 46.4	123 29.1	124 11.8	124 54.2	25 3	121 44.3		122 21.9		123 46.4
	Lat.(N)	deg. min.	7 56.		7 46.	7 36.	7 16.	36 57.0	6 36.	6 17.	7 22.	7 18.	7 12.	7 02.	6 42.	6 22.	6 02.	5 42.	6 49.	6 47.	6 37.	6 27.	6 07.	5 47.	5 27.	5 07.		.90 9	5 52.	5 32.	
		Station	50.0	52.5	55.0	0.09	70.0	80.0	0.06	100.0	0	2.	55.0	0.	70.0	80.0	0.06	100.0		0		0.09	70.0	80.0	0.06	100.0	51.0	53.0	0.09		80.0
		Line S	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	3	3	3	3	3	3	63.3	3	9	66.7	9	6.	6.	9	9	9	70.0	70.0	70.0	70.0	70.0

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							30	Vol.	Stand- ard			
		Lat. (N)	Long, (W)	Ship	Tow Date	Time	Depth	Strained	Hanl	Percent	Total	Total
Line S	Station	deg. min.		Code	yr. mo. day	(PST)	(m)	(cu. m)	Factor	Sorted	Larvae	Eggs
70.0		1 52	124 29.0	JD	84 07 23	1430	205	409	5.01	46.7	4	ω
		4 32.	25 10	JD	4 07 2	0825	212	386	5.50	50.6	3	2
6 (50	38.	21 15.	JD	84 07 21	1910	35	74	4.73	50.0	5	11
· · ·	ص	32	1 28	JD	84 07 21	2215	214	408	5.24	9.05	m	m
· ~	0	5 18.	21 57	JD	84 07 22	0400	209	400	5.23	51.0	4	0
m	0	4 58.	122 39.9	JD	84 07 22	1005	208	400	5.19	52.1	4	m
6	0	4 38.	23 21	JD	84 07 22	1545	210	396	5.32	48.8	11	9
<u>ر</u>	0	4 18.	24 03	JD	84 07 22	2050	211	398	5.30	50,7	9	П
e M	0	3 58.	24 45	JD	84 07 23	0205	211	406	5.20	51.3	10	4
9	48.	5 07.	20 42	JD	84 07 21	1400	28	59	4.79	20.0	9	122
9	51.0	5 01.	20 55	JD	84 07 21	1145	213	396	5.38	51.8	21	0
9	55.0	4 53.	21 11	JD	84 07 21	0755	211	392	5.39	49.2	28	7
9		4 43.	21 33	JD	84 07 21	0300	214	390	5.48	9.09	21	0
9		4 23.	22 14	JD	84 07 20	2025	218	382	5.70	48.3	11	2
. 9	80.0	4 03.	22 56	JD	84 07 20	1403	207	389	5,31	52.0	5	2
9	0.06	3 43.	3 38	JD	84 07 20	0745	209	402	5.20	51.8	m	Н
. 9	100.0	3 23.	2	JD	84 07 20	0145	214	402	5.32	51.4	6	4
0	51.0	4 27.	120 31.4	JD	84 07 16	2028	99	139	4.76	50.0	29	13
0	55.0	4 19	20 4	JD	84 07 16	2340	210	379	5.54	51.9	16	28
0	0.09	4 09.		JD	84 07 17	0405	210	386	5.44	52.5		0
0	70.0	3 49.	2	JD	84 07 18	0430	208	416	2.00	51.7	11	ī.
0	80.0	3 29.		JD	84 07 19	0735	214	375	5.71	51.1	ω	2
0	0.06	3 09.	3 13	JD	84 07 19	1414	209	381	5.48	20.0	S	7
0	100.0	2 49.		JD	84 07 19	2018	209	412	5.07	49.1	13	ω
	46.0	4 16.	19 56	JD	84 07 15	2230	214	366	5.84	52.7	32	16
m		4 13.	ĭ	JD	84 07 16	0690	28	62	4.46	100.0	118	394
	42.0	4 10.		JD	84 07 16	0150	141	256	5.49	50.0	42	57
6	1	3 52.	20 08	JD	84 07 15	1740	92	184	5.01	100.0	37	131
· κ	5	3 44.	20 24	JD	84 07 15	1437	209	398	5.25	49.2	2	0
83.3	0	Ą	2	JD	84 07 15	1040	215	402	5.36	48.3	e	H

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,- - - - -	Eggs	9	~	8	10	58	2.1	49	-	406	2	S.	5	4	10	9	35	5	8	96	3	0	4	0	m	54	180	4	6	1	0
- d	Larvae	12	m	10	7	29	24	12	1	14	12	9	14	5	19	8	12	14	15	83	4	4	36	2	m	14	6	10	13	11	m
Doroga	Sorted	50.0	48.2	50.7	52.6	52.1	100.0	100.0	48.1	52.9	49.1	52.4	52.1	51.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	46.5	100.0	48.5	51.5	49.6	100.0	100.0	100.0	48.0	51.1
Stand- ard	Factor	5.27	5.00	5.31	5.21	4.60	5.35	5.53	5.38	4.95	5.00	5.75	5.21	5.43	5.18	5.16	5.29	5.36	4.90	5.09	4.93	4.70	4.52	4.81	5.03	4.96	4.91	4.85	5.50	4.91	4.84
Vol. Water	(cu. m)	398	410	398	410	92	398	383	397	104	420	377	417	397	407	417	404	393	416	395	410	432	443	426	426	429	911	427	386	412	402
Tow	(田)	210	205	21.1	214	42	213	212	214	51	210	217	217	216	211	215	214	211	204	201	202	203	200	205	214	213	57	207	212	202	195
E. E.		0520	2300	1745	1815	0755	1135	1655	2045	0030	0525	0915	1540	2138	0440	1030	1450	1300	9060	0455	0690	2255	1825	1805	1015	0330	1410	1655	2306	2210	0205
Tow Date	yr. mo. day	84 07 15	84 07 14	84 07 14	84 07 13	84 07 11	84 07 11	84 07 11	84 07 11	84 07 12	84 07 12	84 07 12	84 07 12	84 07 12	84 07 13	84 07 13	84 07 12	84 07 12	84 07 12	84 07 12	84 07 11	84 07 10	84 07 10	84 07 09	84 07 09	84 07 09	84 07 05	84 07 05	84 07 05	84 07 06	84 07 07
S. d.s.		JD	HIN	NH	HN	HN	HN	HN	HN	NH	HN																				
Long. (W)	deg. min.	21 2	122 07.7	22 4	23 29	18 2	18 37	8 5	9 1	9 3	0 0	0 2	0 1	1 4	2 2	3 0	1 4	7 5	3 1	3 2	118 56.1	3 2	9 57	38	18	65 1	7	7 28	32	2	3
(N)	deg. min.	15	32 54.7	34	14	53.	49	39.	29.	19.	09.	59.	39.	19.	59.	39.	28.	25.	15.	11.	55.	39.	25.	05.	45.	25.	57.	52.	50.	40.	30.
	station	0	80.0	0.06	0	33.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	0.08	0.06	100.0	28.0	30.0	35.0	37.0	45.0	53.0	0.09			0.06	9	9.	0.	5.	0
	Line S	83.3	83.3		83.3																										

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							Ç	Vol.	Stand-			
		Lat.(N)	Long. (W)	Ship	Tow Date	Time	-	Strained	Haul	Percent	Total	Total
Line	Station	deg. min.	deg. min.	Code	yr. mo. day	y (PST)	(m)	(cn. m)	Factor	Sorted	Larvae	Eggs
ຕ	45	21.	118 33.1	HN	84 07 07	0620	183	450	4.07	100.0	6	
93.3	50.0	32 11.0	8 5	HN	84 07 07	1020	207	439	. 7	100.0	4	9
3	55	32 00.8	9 1	HN	84 07 07	1400	210	418	5.03	100.0	24	6
3	09	50.	119 34.4	NH	84 07 07	1705	214	408	5.25	100.0	17	3
3	70	30.	120 14.8	NH	84 07 07	2225	211	402	5.25	48.1	8	47
33	80		120 55.2	HN	84 07 08	0335	212	410	5.16	50.6	21	85
ω.	06		121 35.3	EN	84 07 08	0630	214	409	5.23	48.6	4	62
3	100	31.	122 15.7	HN	84 07 08	1530	215	400	5.38	49.6	2	32
6.	29	7	117 04.8	HN	84 07 13	0645	43	102	4.25	100.0	5	40
6.	30	15.	117 09.1	NH	84 07 13	0825	52	108	4.79	100.0	4	699
9	32	11.	117 17.1	HIN	84 07 13	1015	210	432	4.85	100.0	S	2
6.	35	05.	117 29.2	HN	84 07 13	1320	207	423	4.90	100.0	12	1
6.	40	55.	117 49.4	NH	84 07 13	1655	213	424	5.03	100.0	10	9
	45	45.	118 09.8	NH	84 07 13	2020	207	431	4.80	46.9	15	93
6.	50	35.	118 30.5	HN	84 07 13	2345	205	417	4.92	53.1	29	240
6.	55	25.	118 50.5	NH	4 07 1	0325	211	408	5.18	100.0	11	140
6.	.09	15.		NH	84 07 14	0735	205	418	4.91	47.8	3	154
6.		55.	119 50.8	HN	84 07 14	1345	209	401	5.20	50.0	13	100
	80.	35.	120 30.8	HN	84 07 14	1915	215	404	5.32	48.5	3	925
2.96		15.	121 11.0	HN	84 07 15	0040	202	402	5.04	51.4	9	260
	100.	55.		HN	84 07 15	0690	209	416	5.02	100.0	166	3220
	29.	42.	116 43.5	HN	84 07 18	0305	127	272	4.69	100.0	5	52
	30.	41.	116 46.6	HN	84 07 18	0105	198	441	4.49	52.9	15	8
	35.	31.	117 06.8	HIN	84 07 17	2140	209	409	5.12	53.8	31	1
		21.	7	HN	4 07 1	1800	201	443	4.53	100.0	57	77
	45.0	11.	7	HN	84 07 17	1440	214	401	5.33	100.0	125	92
0	0.	01.	8 07.	NH	84 07 17	1115	211	401	5.26	47.7	26	85
0	5.	51.	118 27.3	NH	84 07 16	1315	214	399	5.37	45.5	24	34
0	0.09	30 41.3	9	HN	84 07 16	0945	209	394	5.29	52.3	19	393
100.0	0.	21.	119 27.3	NH	84 07 16	0425	207	420	4.92	100.0	112	806

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		Total	e Eggs	3 398		3 1564	1 243	19 0	8 6	4 2	38	5 199	5 114	9 169	3 674	7 369	7 94	7 655	7 81	1 2	3 10	5 137	132	9 52	3 430	1 246	3 203	316	5 121	9 820	0 1	3 4	
		t Total	Larvae	43	69	53	34	10	6	24	100	35	85	59	18	37	77	157	1-	Г	38	46	97	59	53	134	229	151	36	250	1	83	
		Percent	Sorted	48.5	0	100.0	100.0	100.0	100.0	100.0	100.0	51.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	54.8	100.0	52.6	50.0	51.6	100.0	100.0	100.0	100.0	100.0	100.0	51.1	100.0	
Stand		Haul	Factor	5.17	4.99	4.82	4.86	5.20	5.04	5.58	5.27	5.40	5.03	5.32	4.65	4.74	4.71	4.85	3.90	4.68	5.04	4.51	4.99	5.27	5.14	5.08	5.22	4.75	5.07	4.85	4.15	5.72	
VOI.	Water	Strained	(cn. m)	403	422	430	09	26	417	386	404	389	418	396	436	430	428	423	38	31.1	402	443	418	393	410	417	412	434	420	433	87	383	
1	TOW	Depth	(m)	208	211	207	29	20	210	215	213	210	210	211	203	204	202	205	1.5	145	202	200	209	207	211	212	215	206	213	210	36	219	
		Time	y (PST)	2310	1755	1230	0745	0935	1335	1645	2000	2315	0235	0635	1205	1715	2235	0345	1035	0840	0605	0220	2230	1805	1420	0925	0240	2100	1525	0935	1455	1740	
		Tow Date	yr. mo. day	84 07 15	84 07 15	84 07 15	84 07 18	84 07 18	84 07 18	84 07 18	84 07 18	84 07 18	84 07 19	84 07 19	84 07 19	84 07 19	84 07 19	84 07 20	84 07 22	84 07 22	84 07 22	84 07 22	84 07 21	84 07 21	84 07 21	84 07 21	84 07 21	84 07 20	84 07 20	84 07 20	84 07 22	84 07 22	
		Ship	Code	HN	HN	HN	NH	HIN	NH	NH	HN	HN	HN	NH	NH	HN	HN	NH	NH	HN	NH	HN	HN	NH									
			deg. min.		120 47.1	121 26.2	116 20.6	116 24.3	116 44.6	117 04.5	117 24.5		118 04.9		119 04.4	6	0	121 03.2		116 09.7		116 41.9		1	1	8	118 41.1	119 20.1	119 59.5	0		2	
		Lat.(N)	deg. min.	01.	41	20.	∞	07.	57.	30 47.1	36.	26.	16.	07.	47.	26.	.90	47.	29.	27.	21.	11.	01.		41.	31.	29 11.0	50.	32.	11.	52.	4	
			Station	80.0	0.06		29.0	30.0	35.0		45.0					80.0	0.06		31.0	32.0	35.0		45.0	50.0			70.0	80.0		100.0		35.0	
			Line	100.0	100.0		103.3			103.3			0				103.3	03.	106.7	0	9		0				106.7			9			

CalCOFI Cruise 8407

	Total	Eggs	339	16	52	9	154	106	8	446	205
	Total	Larvae	71	95	30	74	277	33	31	46	127
	Percent	Sorted	100.0	100.0	48.6	100.0	100.0	100.0	100.0	100.0	100.0
Stand- ard	H	Factor	4.99	5,13	5.20	5.30	5.37	4.79	5.41	4.66	5,11
Vol. Water	Strained	(cn. m)	420	405	413	405	400	422	398	420	418
TOW	Depth	(m)	209	208	215	215	215	202	215	196	213
	Тіте	(PST)	1015	1355	1905	2315	0245	0620	1205	1645	2210
	Tow Date	yr. mo. day (PST)	84 07 23	84 07 23	0.7		0.7	84 07 24	84 07 24	84 07 24	84 07 24
	Ship	Code	HN	MH	HN	HN	NH	NE	NH	NH	HN
	Long. (W)	deg. min.	116 39.5			117 38.5		118 18.0			120 15.2
	Lat. (N)	deg. min.	29 27.4	29 17.2		28 57.6					27 37.2
		Line Station	45.0	50.0	55.0	60.0	65.0	70.0	80.0	0.06	100.0
		Line S	110.0	0.011	110.0	110.0	110.0	110.0	110.0	110.0	110.0

CalCOFI Cruise 8410

		Total	Eggs	59	37	1	m	2	2	0	9	31	0	0	2	0	15	24	0	0	0	9	7	28	11	2	7	11	22	1	=	18
		Total	Larvae	5	0	2	9	1	1	5	ω	3	27	2	2	3	2	7	2	1	-	Э	1	7	3	10	0	2	2	2	4	ω
		Percent	Sorted	50.7	48.2	51.4	46.6	49.2	100.0	48.4	100.0	47.2	49.3	48.1	49.3	100.0	51.7	48.6	49.4	50.0	48.6	100.0	100.0	47.2	100.0	100.0	100.0	100.0	46.7	53.1	100.0	100.0
Stand-	ard	Hanl	Factor	4.62	4.91	5.04	5.08	5.15	4.82	5.73	4.95	5.26	5.30	4.68	5.49	5.10	5.17	2.00	4.96	4.82	5,33	5.16	4.63	5.02	4.91	2.00	4.05	4.15	5.09	5.12	5,13	5.44
vol.	Water	Strained	(cn. m)	106	160	414	407	407	435	381	427	168	411	454	391	421	407	418	417	440	404	413	212	422	433	438	69	29	411	409	413	395
	TOW	Depth	(m)	49	78	209	207	209	210	218	211	88	218	212	215	215	210	209	207	212	215	213	86	212	212	219	28	28	209	209	211	215
		Time	(PST)	1905	2055	2325	0410	1005	1620	2235	0450	0955	0725	0335	2125	1550	0915	0755	0445	0035	1800	1205	0425	0715	1345	2030	0020	2100	0325	0800	1520	2055
		Tow Date	yr. mo. day	84 10 18	84 10 18	84 10 18	84 10 19	84 10 19	84 10 19	84 10 19	84 10 20	84 10 21	84 10 21	84 10 21	84 10 20	84 10 20	84 10 18	84 10 18	84 10 18	4 10 1	84 10 17	84 10 17	84 10 16	84 10 16	84 10 16	84 10 16	84 10 22	84 10 15	84 10 22	84 10 22	84 10 22	84 10 22
		Ship		JD	JD	JD	JD	JD	30	JD																						
		Long. (W)		22 5	23	23 1	23 3	24	25 0	25 4	26	22	22 5	23 1	23 5	24 3	21 5	22 0	22 2	22	23 2	24	1 4	21 5	22 2	23 04.	21 1	21	21 2	21 5	22	23
		Lat.(N)	deg. min.	7 56.	7 51.	7 46.	7 36.	7 16.	6 56.	6 36.	6 16.	7 18.	7 12.	7 02.	6 42.	6 22.	6 49.	6 47.	6 37.	6 27.	6 07.	5 47.	36 10.7	.90 9	5 52.	5 32.	5 38.	5 38.	5 32.	5 18.	4 58.	4 38.
			Station	0.	2		0.	0.	0.	0.	0.	2	5	0.	0.	0.	9.	0.	5.	0.	0.	0.	51.0	3	0.	0.	0.	0.	3	0.09	0.	0.
			Line :	0.	0	6	0.	0	0	0	0.	3	3	3	3	3	9	6.	6.	9	9	6.	70.0	0.	0.	0.	3	3	3	3	3	3

CalCOFI Cruise 8410

	Total	Eggs	7	4	144	99	1	2	2	0	49	0	0	2	2	ω	35	٦	62	21	82	٦	2	14	Н	64	37	55	CT.	0	Н	10	
	Total	Larvae	. 11	80	Э	m	8	m	m	10	0	2	9	Э	9	1	.c	10	32	5	21	10	00	4	S	8	П	57	15	6	2	13	
	Percent	Sorted	100.0	100.0	100.0	50.0	1.00.0	100.0	100.0	100.0	100.0	50.0	100.0	53.7	50.0	100.0	100.0	100.0	100.0	100.0	100.0	51.4	100.0	100.0	47.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Stand-	Haul	Factor	5.29	5.13	4.35	4.88	5.44	5.15	2.07	5.09	4.40	5.13	5.02	4.99	4.99	4.95	4.88	5.83	3.90	5.27	4.45	4.99	5.41	5.47	90.5	5.24	5.23	5.11	5.17	5.48	5.41	4.84	
Vol.	Strained	(cn. m)	408	430	63	430	391	419	415	423	159	418	415	425	430	421	432	379	69	300	217	421	393	393	421	412	412	102	406	389	406	147	
É	Depth	(m)	216	221	27	210	213	216	211	216	70	214	209	212	215	209	211	221	27	158	96	210	213	215	213	216	216	52	210	213	220	71	
	Time	(PST)	0240	0805	2005	2235	0225	0690	1345	1935	1425	1025	1110	0530	2230	1615	0915	1245	1640	1900	0034	0435	0827	1420	1955	0123	1100	0140	0510	0935	1435	1820	
	Tow Date	yr. mo. day	84 10 23	84 10 23	84 10 12	84 10 12	84 10 13	84 10 13	84 10 13	84 10 13	84 10 12	84 10 12	84 10 11	84 10 10	84 10 09	84 10 09	84 10 09	84 10 07	84 10 07	84 10 07	84 10 08	84 10 08	84 10 08	84 10 08	84 10 08	84 10 09	84 10 05	84 10 03	84 10 03	84 10 03	84 10 03	84 10 03	
	Ship		JD	J.D	S.	JD	d'S	S.	JD	ST.	JD	JD	JD	JD	25	S C	S C	dr dr	d G	JD	dr	JD	S.D	5	JD	JD	JD	JD	JD	J.D	dr.	JD	
	Long. (W)		0		120 42.4	120 55.1	121 11.9	32.	122 14.8	122 56.5	120 31.4	120 48.1	121 09.0	121 50.6	32	123 13.3	123 54.4	119 56:5	119 24.7	119 30.5	120 08.0	120 24.4	120 45.3	121 26.6	122 07.6	122 48.7	123 29.5	118 29.7	118 37.6	118 58.4	119 19.2		
	Lat.(N)	deg. min.	4 18.	3 58.	5 07.	5 01.	4 53.	4 43.	4 23.	4 03.	4 27.	4 19.	4 09.	3 49.	3 29.	3 09.	2 49.	4 16.	4 13.	4 10.	2	3 44.	3 34.	3 14.	2 54.	2 34.	2 14.	3 53.	3 49.	3 39.	3 29.	3 19.	
		Station	0	100.0	∞		55.0	0.09	70.0	80.0	51.0	55.0	0.09	70.0	80.0	0.06	100.0	46.0	40.6	42.0	51.0	55.0	0.09	70.0	80.0	0.06	100.0	3.		40.0		0.	
		Line S	3	e.	9	9	9	9	9	9	0	0	0	0	0	0	0	2	3	3	83.3	3	3	3	3.		3		9	9	9	9	

CalCOFI Cruise 8410

	Total	Eggs	0	2	n	8	31	29	8	0	0	0	0	0	80	16	2	2	1	1	0	m	0	2	2	2	8	6	33	18	13	4
	Total	Larvae	9	34	8	6	19	18	4	5	9	12	7	6	31	6	4	2	2	0	18	66	38	48	27	S	10	29	7	35	m	0
	Percent	Sorted	48.6	51.6	48.6	50.0	100.0	100.0	100.0	48.1	52.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	51.7	48.5	100.0	100.0	100.0	100.0	100.0
Stand- ard	Haul	Factor	5.29	5.13	5.37	5.16	5.25	5.21	4.37	4.35	5.22	4.96	4.15	4.69	4.19	5.15	4.93	5.18	4.88	4.59	2.06	5.17	4.74	4.91	5.29	4.57	4.75	4.93	5.01	4.92	4.95	4.93
Vol. Water	Strained	(cu. m)	404	409	389	409	406	399	94	449	405	427	456	449	459	414	134	407	409	438	410	421	429	410	400	424	429	429	41.7	89	87	401
Tow	Depth	(m)	214	210	209	211	213	208	41	195	211	212	189	210	192	213	99	211	199	201	207	218	203	201	212	194	204	212	209	44	43	197
	Time	(PST)	2220	0300	0855	1520	2130	0405	1635	1945	2300	0210	0710	0705	0352	0940	1320	1032	1232	0902	0630	0259	2310	1930	1600	0940	0329	2135	1535	1202	1318	1454
	Tow Date	yr. mo. day	84 10 03	84 10 04	84 10 04	84 10 04	84 10 04	84 10 05	84 10 18	84 10 18	84 10 18	84 10 19	84 10 19	84 10 20	84 10 22	84 10 22	84 10 25	84 10 25	84 10 24	84 10 24	84 10 24	84 10 24	84 10 23	84 10 23	84 10 23	84 10 23	84 10 23	84 10 22	84 10 22	84 10 26	84 10 26	84 10 26
	Ship	Code 3	JD	JD	JD	JD	JD	JD	HN	HN	HN	HN	HN	HN	NH	HN	HN	HN	HN	HN	HIN	HN	NH	HIN	HN	HN	HIN	HIN	HN	HN	HN	HIN
	Long. (W)		0	21.	02	4	2	0	4	S	7	7	5	2	59	m	7	27.	C	S		C	2	9 1	9 3	0	0 55	1 35.	2 1	7 04	08.	7 1
	Lat. (N)	deg. min.	09.	59	39.	19	59.	39.	29.	25.	15.	11.	55.	39.	25.	05.	57.	52.	50.	40.	32 30.9	20.	10.	00	50.	31.	H.	51.	31.	17.	15.	2 11.
		Station	55.0		70.0					30.0		37.0	45.0	53.0	0.06	100.0	26.7	29.0	30.0	35.0	40.0	45.0	50.0	55.0	0	0	0	0	0	9	30.0	3
		Line S	Ġ		9	10	9	6	0	0	0	0	0	0	0	0	m	3	6	m	93.3	m	m	3	m	m	m	3	6	9	9	

CalCOFI Cruise 8410

		Total	Eggs	0	0	red	H	6	7	4	20	22	25	m	2	m	2	-	-	e	23	4	110	29	11	19	3	0	0	0	1	12	55
		Total	Larvae	9	26	35	4	6	3	103	305	66	33	4	8	3	₹	21	09	440	17	11	314	219	196	7	6	14	e	5	19	69	550
		Percent	Sorted	46.9	53.1	100.0	100.0	100.0	100.0	47.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	53.3	100.0	100.0	45.5	53.6	100.0	51.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand-	ard	Haul	Factor	4.55	5.06	5.20	5.84	5.29	4.89	5.01	4.82	4.30	4.81	4.72	5.37	5.27	5.10	5.11	5.09	5.09	4.44	5.22	4.10	5.20	4.67	4.40	4.65	4.83	4.73	4.99	4.73	5.07	5.04
Vol.	Water	Strained	(cu. m)	414	413	410	373	404	436	419	447	453	439	152	397	397	405	412	415	412	457	414	467	416	449	64	116	437	438	430	443	420	415
	Tow	Depth	(田)	1.88	209	213	218	214	213	210	215	195	211	72	213	209	206	211	211	210	203	216	192	217	209	28	54	211	207	214	210	213	209
		Time	(PST)	1806	2131	9010	0442	0820	1202	1753	2329	0543	1140	1545	1407	1035	0648	0303	2320	1944	1610	1035	0454	2303	1722	2201	2300	0236	0614	0940	1346	1717	2043
		Tow Date	yr. mo. day	84 10 26	84 10 26	84 10 27	84 10 27	84 10 27	84 10 27	84 10 27	84 10 27	84 10 28	84 10 28	84 10 30	84 10 30	84 10 30	84 10 30	84 10 30	84 10 29	84 10 29	84 10 29	84 10 29	84 10 29	84 10 28	84 10 28	84 10 30	84 10 30	84 10 31	84 10 31	84 10 31	84 10 31	84 10 31	84 10 31
		Ship	Code	NH	NH	NH	NH	NH	NH	HIN	HN	HIN	HN	HN	HN	HN	HN	NH	HN	HN	HIN	NH	HN	HIN	HN	NH	HN	HIN	HN	NH	HN	HN	HN
		Long. (W)	deg. min.	117 29.2	117 49.1	118 10.0	118 30.1	118 50.5	119 10.4	6	112 30.9	121 10.8	121 50.7	116 43.3	116 46.5	117 06.9	1	117 47.0	118 07.2	118 27.5	118 47.6	119 27.5	120 07.2	120 47.0	121 26.8	116 20.5		116 44.7	117 04.7	117 24.8	117 44.8	118 04.8	118 24.8
		•	deg. min.	05.	31 55.5	45.	35.	25.	15.	55.	35.	15.	55.	42.	41.	31.	21.	11.	01.	51.	41.	21.	01.	41.	21.	08.	06.	30 56.9	47.	36.	26.	16.	06.
			Station	5	40.0	5	0	5	0	0	80.0	0.06	100.0	29.5	30.0	35.0	40.0	45.0	0	55.0	0	0	80.0	0.06	0	9	0	35.0	0.	0	0.		0.
			Line 8	7.96	7.96	7.96	7.96	7.96	7.96	2.96	7.96	2.96	6.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0	3	3	3	3	103.3	03	03	\sim

TABLE 1. (cont.)

CalCOFI Cruise 8410

	Total	Eggs	103	134	40	152	30	11	2	0	0	4	10	10	33	99	95	19	7	1	4	5	3	6	28	62	85	33	92
	Total	Larvae	267	111	72	143	1	2	11	8	0	_	337	213	175	71	115	151	5	9	8	31	34	70	523	242	59	36	92
	Percent	Sorted	1000		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	50.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand- ard	Haul	Factor	4 78	4.97	- 0	4.83	4.29	5.24	5.34	5.18	4.87	4.82	4.98	4.96	5.24	5.18	4.98	5.04	4.36	4.66	4.91	5.12	4.46	4.85	4.93	4.59	4.84	4.77	5.08
Water	Strained	(cn. m)	442	422	423	417	35	325	397	427	430	433	430	432	410	409	419	415	98	436	427	418	445	425	425	445	431	436	423
Tow	Depth	(田)	211	210	209	201	15	170	212	221	210	209	214	215	215	212	209	209	43	203	210	214	199	206	209	204	209	208	215
	Time	(PST)	0243	0800	1356	1928	2323	2201	1922	1540	1156	0752	0336	2343	1824	1228	0200	0128	0437	0707	1123	1454	1829	2154	0116	9690	1158	1704	2228
	Tow Date	yr. mo. day	84 11 01	84 11 01	84 11 01	84 11 01	84 11 03	84 11 03	84 11 03	84 11 03	84 11 03	84 11 03	84 11 03	84 11 02	84 11 02	84 11 02	84 11 02	84 11 02	84 11 04	84 11 04	84 11 04	84 11 04	84 11 04	84 11 04	84 11 05	84 11 05	84 11 05	84 11 05	84 11 05
		1. Code	HN	HN	HN	NH	HW	EN	HN			HN	HIN	NH	NH	HN		HIN	EN	HN	HN	HN	NH	HN	EN	HN	HN	HN	EN
	ong.	deg. min.	119 04.5	19 4	20 23	1 0	16 0	91	16 2	16	17 0	17 2	17 4	18	18 4	19 21	19 59	20 38	2	5 5	9	6 39.	116 59.2	7 19.	7 38.	8 18.	18 57.		20 1
	N.	deg. min.	29 46.8	26.	07	~	29.	27.	21.	11.	01.	51.	41.	31.	11.	50.	31.	11.	52.	47.	37.	27.	17.	07.	57.	37.	17.	57.	37.
		Station	70.0	80.0	0.06	100.0	31.0	32.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	80.0	0.06	100.0	32.4	35.0	40.0	2	0	2	0	0	0	0	100.0
		Line	03	3	03	0	9	90	90	106.7	90	106.7	90	106.7	106.7	106.7	106.7	106.7	110.0	0	110.0	110.0	0			0	0	110.0	

TABLE 2. Pooled occurrences of fish larvae taken during CalCOFI cruises in 1984.

Rank	Taxon	Occurrences
1	Protomyctophum crockeri	327
2	Engraulis mordax	314
3	Vinciguerria lucetia	
		287
4	Sebastes spp.	284
5	Triphoturus mexicanus	256
6	Stenobrachius leucopsarus	238
7	Bathylagus ochotensis	199
8	Cyclothone spp.	190
9	Leuroglossus stilbius	187
10	Disintegrated fish larva	168
11	Symbolophorus californiensis	140
12	Sternoptychidae	139
13	Lampanyctus spp.	135
14	Lampanyctus ritteri	134
15	Diogenichthys atlanticus	127
16	Ceratoscopelus townsendi	115
17	Merluccius productus	111
17	Myctophidae	111
19	Diaphus spp.	74
20	Unidentified fish larva	69
21	Melamphaes spp.	68
22	Chauliodus macouni	67
23	Bathylagus wesethi	64
24	Lestidiops ringens	61
24	Diogenichthys laternatus	61
26	Trachurus symmetricus	60
27	Bathylagus pacificus	46
28	Citharichthys stigmaeus	41
29	Tarletonbeania crenularis	40
30	Sebastes paucispinis	35
31	Microstoma microstoma	33
32		32
32	Stomias atriventer	32
34	Diogenichthys spp.	27
34	Citharichthys sordidus	27
36	Bathylagus spp.	26
37	Tetragonurus cuvieri	25
37	Genyonemus lineatus	25
39	Idiacanthus antrostomus	24
40	Myctophum nitidulum	22
41	Cottidae	21
42	Trachipteridae	20
43	Hygophum reinhardtii	19
43	Gobiidae	19
45	Cololabis saira	17
45	Nansenia candida	
45	Scomber japonicus	17
45	Electrona rissoi	17
45		17
40	Danaphos oculatus	17

TABLE 2. (cont.)

Sardinops sagax 16	Rank	Taxon	Occurrences
50 Parophrys vetulus 16 52 Lampanyctus regalis 15 52 Sebastolobus spp. 15 52 Clinidae 15 55 Argentina sialis 14 55 Oxyjulis californica 14 55 Gonichthys tenuiculus 14 55 Hypsoblennius spp. 14 59 Paralichthys californicus 13 60 Aristostomias scintillans 12 60 Lyopsetta exilis 12 60 Lyopsetta exilis 12 60 Scopelogadus bispinosus 12 60 Scopelogadus milleri 12 60 Notolepis risso 12 61 Rosenblattichthys volucris 11 62 Rosenblattichthys volucris 11 63 Rosenblattichthys volucris 11 64 Notolychnus valdiviae 10 65 Rosenblattichthys valdiviae 10 66 Chromis punctipinnis 10 <	50	Sardinons sagay	16
52 Lampanyctus regalis 15 52 Sebastolobus spp. 15 52 Clinidae 15 55 Argentina sialis 14 55 Oxyjulis californica 14 55 Gonichthys tenuiculus 14 55 Hypsoblennius spp. 14 59 Paralichthys californicus 13 60 Aristostomias scintillans 12 60 Lyopsetta exilis 12 60 Scopelogadus bispinosus 12 60 Scopelogadus bispinosus 12 60 Scopelogadus bispinosus 12 60 Scopelogadus bispinosus 12 61 Rosenblattichthys verlicalis 12 62 Rosenblattichthys volucris 11 65 Rosenblattichthys verlicalis 10 66 Chromis punctipinnis 10 66 Chromis punctipinnis 10 67 Hygophum atratum 10 70 Chiasmodontidae 9 71 Excocetidae 9 72	50	Parophrus vetulus	
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95 Pleuronichthys ritteri 4			

TABLE 2. (cont.)

Rank	Taxon	Occurrences
99	Brosmophycis marginata	3
99	Macrouridae	3
99	Pleuronichthys decurrens	3
	Citharichthys xanthostigma	3
99	Semicossyphus pulcher	3
99	Hippoglossina stomata	3
99	Anguilliformes	3
99	Agonidae	3
99	Benthalbella dentata	3
99	Etrumeus acuminatus	3
99	Icosteus aenigmaticus	3
	Ophidiiformes	2
110	Scopeloberyx robustus	2
	Halichoeres spp.	2
	Macroramphosus gracilis	2
110	Peprilus simillimus	2
110	Valenciennellus stellatus Blennioidei	2
110	Blennioidei	2
	Gobiesocidae	2
	Gerreidae	3 3 3 3 3 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2
110	Pleuronichthys coenosus	2
110	Syngnathus spp.	2
	Gempylidae	2
	Sebastes macdonaldi	
	Bathophilus spp.	1
123	Psettichthys melanostictus	1
123	Bolinichthys spp.	1
	Anotopterus pharao	1
	Chilara taylori	1
123	Scorpaena spp.	1
123	Lepidopus xantusi	1
	Tactostoma macropus	1
123	Hypsopsetta guttulata	1
123	Lepidopsetta bilineata	1
	Haemulidae	1
123	Sebastes levis Ophidion scrippsae	1
123	Atractoscion nobilis	1
123		1
123	Synodus spp.	1

TABLE 3. Pooled numbers of fish larvae taken during CalCOFI cruises in 1984. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	Engraulis mordax	126817
2	Vinciguerria lucetia	50716
3	Merluccius productus	29328
4	Sebastes spp.	15316
5	Stenobrachius leucopsarus	13143
6	Leuroglossus stilbius	12343
7	Triphoturus mexicanus	8004
8	Bathylagus ochotensis	5687
9	Protomyctophum crockeri	4410
10	Cyclothone spp.	3307
11	Diaphus spp.	2316
12	Disintegrated fish larva	1968
13	Trachurus symmetricus	1849
14	Lampanyctus ritteri	1746
15	Symbolophorus californiensis	1733
16	Ceratoscopelus townsendi	1731
17	Lampanyctus spp.	1572
18	Myctophidae	1525
19	Sternoptychidae	1425
20	Sardinops sagax	1273
21	Diogenichthys laternatus	1257
22	Genyonemus lineatus	1249
23	Diogenichthys atlanticus	1210
24	Bathylagus wesethi	1139
25	Bathylagus pacificus	838
26	Unidentified fish larva	704
27	Scomber japonicus	630
28	Citharichthys stigmaeus	576
29	Chauliodus macouni	573
30	Tarletonbeania crenularis	556
31	Melamphaes spp.	554
32	Sebastes paucispinis	545
33	Lestidiops ringens	541
34	Bathylagus spp.	491
	Oxyjulis californica	486
36	Parophrys vetulus	415
37	Citharichthys sordidus	394
38	Diogenichthys spp.	372
39	Icichthys lockingtoni	360
40	Cottidae	355
41	Tetragonurus cuvieri	316
42	Gobiidae	314
43	Nansenia candida	305
44	Stomias atriventer	287
45	Microstoma microstoma	247
46	Hypsoblennius spp.	242
47	Clinidae	200

TABLE 3. (cont.)

Ran	k Taxon	Count
48	Danaphos oculatus	107
49	Trachipteridae	187
50	Chromis punctipinnis	186
51	Paralichthys californicus	178
52	Idiacanthus antrostomus	177
53	Lampanyctus regalis	165
54	Pleuronichthys verticalis	158
55	Electrona rissoi	147
56	Hygophum reinhardtii	145
57	Sebastolobus spp.	143
58	Sebastes jordani	138
59	Myctophum nitidulum	129
60	Cololabis saira	122
61	Bathylagus milleri	115
62	Citharichthys spp.	114
63	Lampadena urophaos	113
63	Microstomus pacificus	112
65	Lyopsetta exilis	112
66	Argentina sialis	104
67	Gerreidae	99
68	Notolepis risso	97
69	Gonichthys tenuiculus	96
70	Seriphus politus	95
71	Glyptocephalus zachirus	93
71	Aristostomias scintillans	81
73	Scopelogadus bispinosus	81
74	Notolychnus valdiviae	80
75	Paralepididae	75
76	Scopelarchus spp.	70
77	Exocoetidae	69
78	Serranidae	68
79	Scorpaenichthys marmoratus	64
79	Rosenblattichthys volucris	63
81	Sebastes aurora	63 61
82	Pleuronichthys ritteri	58
83	Chiasmodontidae	57
84	Ceratioidei	55
84	Hygophum atratum	55
86	Notoscopelus resplendens	51
87	Scopelosaurus spp.	50
87	Icosteus aenigmaticus	50
89	Poromitra spp.	44
90	Ichthyococcus spp.	43
91	Etrumeus acuminatus	42
92	Loweina rara	41
92	Stomiiformes	41
94	Sphyraena argentea	36
95	Semicossyphus pulcher	35
95	Zaniolepis spp.	35
	* *	3 3

TABLE 3. (cont.)

Rank	Taxon	Count
97	Xystreurys liolepis	34
98	Vinciguerria poweriae	32
99	Pleuronichthys decurrens	31
99	Atherinidae	31
101	Oxylebius pictus	28
102	Brosmophycis marginata	26
103	Gonostomatidae	25
	Blennioidei	25
	Agonidae	24
	Hippoglossina stomata	23
	Citharichthys xanthostigma	23
	Syngnathus spp.	23
	Valenciennellus stellatus	22
	Anguilliformes	21
	Sebastes macdonaldi	21
	Pleuronichthys coenosus	21
	Hygophum spp.	20
	Tactostoma macropus	20
	Peprilus simillimus	20
	Benthalbella dentata	18
	Macrouridae	18
118	Scopeloberyx robustus	15
	Macroramphosus gracilis	15
118	Hypsopsetta guttulata	15
121	Synodus spp.	14
121	Gempylidae	14
121	Gobiesocidae	14
124	Ophidiiformes	10
124	Lepidopsetta bilineata	10 10
124 127	Scorpaena spp. Atractoscion nobilis	9
127		9
120	Psettichthys melanostictus	8
120	Halichoeres spp.	8
	Lepidopus xantusi	5
131	Bolinichthys spp.	
131	Anotopterus pharao	5
131	Bathophilus spp.	5 5 5 5 5
131	Sebastes levis	5
131	Ophidion scrippsae	5
137	Haemulidae	4
	makes and mark to the solar total total total	•
	Total	306549

Numbers of fish larvae taken on stations occupied during CalCOFI cruises in 1984. Counts are adjusted for percent of sample sorted and standard haul factor (see text). Average number is given for stations occupied twice during a single month. Unoccupied stations are indicated by a dash. TABLE 4.

	DEC.	1 1 1		DEC.	1 1 1		DEC.	1 1 1 1	1 1 1	1 1 1 1		DEC.	1 1 1	1 1	i	t I	1 1
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Anguilliformes	MAY	1 1		MAY	0.0	Sardinops	MAY	0040		1 1 1 1	Engraulis	MAY	000	0 0	000	0.0	0.0
An	APR.	000	Etrumeus	APR.	0000	Sar	APR.	0000	0000	0000	Eng	APR.	000	000) •	0.0	0.0
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TABLE 4. (cont.)

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(cont.)	JULY		JULY	10.0 10.0 11.1 0.0 4.8 4.8 0.0 0.0 0.0	JULY	0.00
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Engraul	APR.	25.2 0.0 0.0 20.1 51.0 4.7 4.7 4.7 4.7 4.7 4.7 6.0 0.0 0.0 4.9	APR.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	APR.	0.0
	MAR.	10.1 10.1 15.2 12.5 990.0 0.0 11.0 123.0 458.5 135.5 10.0	MAR.	00000	MAR.	11111
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TABLE 4. (cont.)

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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	JAN.		0.0		8			0		- 0			- 0							- 0	-		0		0.0		. 0				0	0	- 0						- 6		0					0.4	
		0	40.0	0	0.	0.	0.	0	2	5.	0	5	0.	5	0	0	0	5	5	0	2	0	0	0	0	5	0.	5.	0.	5	0	0	0	0	5	5.	0		0	0	0	0	2	0	00	D u	•
	STATION	1 6	93.3	3	3	3	3.3	3	9	9	9	9	9	9	9	9	9	0.0	00	00	00	00	00	00	00	03.	03.	03.	03.	03.	03.	03.	03.	03.	06.	.90	.90	.90	. 90	06.	06.	90	10.	10.	10.	o c	10.

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	OCT.	111		OCT.	0.0					0.0				0.0			0 0							0		0	0	1				0		4.C
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) t.)	JULY	0000	i	JULY	0.0	0 0				0.		0	0		0					·	0 0	0	0	0	0		0		0 0			0		
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Sternoptychidae	MAY	1111	Chauliodus	MAY	0.0	0	10.6				0			0.0	0		0 0	0 0	0		0 6	,				0	l l		1 1	1	ı	ŀ	ł	LI
Sterno	APR.	0.00	Chau	APR.	0.0	0		000	0	0.0		0 0 1		10.9	0		0 (0	8 4	0		0			0 I						4	0.0
	MAR.	0.0 0.0 4.2 4.7		MAR.		1 1	1	1 1	ŀ	ı	ı	1 1	- 1	1	=	1 .	1 1	ļ	1	1	1 1	ŀ	ı	1	ı	1				- 1		0.0		1 1
	FEB.			FEB.	0.0		0								0								8			0	1 !		0.0	1	ı	ı		00.0
	JAN.	0000		JAN.		0 0	0	0	0 0	0			0	0 0				0 0			0							0						0.0
	NO	60.0 70.0 80.0 100.0		NC	50		0	00		70.	0	200		80.	0.	60.	, 0		0.0	÷		, i	0	0	90.	٠ ٢	ກ່ວ		o L		0		0	90.0 100.0
	STATION	110.0		STATION	00		· m	9	9	0	0	ω, r	, , ,		6.	0.0	٥.	, n	m	m (200	9	9	9	9	٥			٠ ۲	٠ ۲	,	, . , m	٠ ش	93°3

TABLE 4. (cont.)

E 8	DEC.		DEC.	
	NOV.	0.00	NOV	
	OCT.	0.0000000000000000000000000000000000000		0.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0
	SEP.		SEE.	
	AUG.		AUG.	
(cont.)	JULY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1000	000000000000000000000000000000000000000
	JUNE	0.0 18.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JONE	000000000000000000000000000000000000000
Chauliodus macouni	MAY		MAI	0.0000000000000000000000000000000000000
boilue	APR.	4.9 0.0 0.0 4.8 0.0 0.0 0.0 0.0 4.9 1diacanthus	APR.	0 0 000 0000000000000000000000000000000
CF	MAR.	0.00 0.	MANK.	000 00 000000
	FEB.	0.00	reb.	000000000000000000000000000000000000000
	JAN.	0.00 0.00 0.00 0.00 0.00 0.00 0.00	JAIN.	010000000000000000000000000000000000000
	STATION	96.7 32.0 96.7 32.0 96.7 35.0 96.7 80.0 100.0 50.0 100.0 50.0 106.7 70.0 110.0 40.0 110.0 50.0	STATION	60.0 100.0 66.7 80.0 70.0 90.0 73.3 90.0 73.3 90.0 73.3 90.0 73.3 100.0 80.0 80.0 80.0 80.0 93.3 45.0 93.3 45.0 93.3 45.0 93.3 45.0 93.3 46.0 100.0 55.0 100.0 100.0 100.0 110.0 65.0 110.0 65.0 110.0 65.0 110.0 65.0

	DEC.			DEC.	1		DEC.	1		DEC.	
	NOV.	0.00		NOV.	0.0		NOV.	1		NOV.	
	OCT.	1000000011		OCT.	1		OCT.	0.0		OCT.	000000000000000000000000000000000000000
	SEP.			SEP.	ŧ		SEP.	ı		SEP.	
	AUG.	111111111		AUG.	1		AUG.	i		AUG.	
lans	JULY	000000000		JULY	0.0		JULY	19.8	L	JULY	
scintillans	JUNE	0000000	us spp.	JUNE	0.0	TO TOTAL	JUNE	1	atriventer	JUNE	22.7
tomias	MAY	10.00	Bathophilus	MAY	4.7 - Tartostoma	i i	MAY	0.0		MAY	10.6
Aristostomias	APR.	21.4 5.3 5.3 0.0 0.0 4.7	Ва	APR.	4.7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	APR.	0.0	Stomias	APR.	0000000040000010000
7	MAR.	0.00		MAR.	0.0		MAR.	ı		MAR.	10.7 10.0 0.0 0.0 0.0 5.1 5.1
	FEB.	40000www11		FEB.	1		FEB.	0.0		FEB.	000000000000000000000000000000000000000
	JAN.	0004040000		JAN.	0.0		JAN.	0.0		JAN.	10000000000000000000000000000000000000
	N	1000.0 1000.0 1000.0 90.0 1000.0 70.0 70.0 1000.0		NC	45.0		Z	70.0		N	0.001 0.002 0.002 0.002 0.003
	STATION	76.7 83.3 86.7 99.0 93.3 96.7 100.0		STATION	106.7		STATION	0.09		STATION	883.3 863.7 990.0 990.0 990.0 990.0 100.0 100.0 100.0 100.0 100.0 100.0

TABLE 4. (cont.)

 	DEC.	1111		DEC.	1		DEC.	111111111		DEC.	
	NOV.	8.000		NOV.	0.0		NOV.	111111118		NOV.	1 1 1 1 1 1 1 1 1 1
	OCT.	1111		OCT.	B.		OCT.	40000000		OCT.	
	SEP.	1111		SEP.	1		SEP.			SEP.	
	AUG.	1 1 1 1 1		AUG.	l		AUG.	1111111		AUG.	
(cont.)	JULY	0000	0	JULY	0.0		JULY	00000000	S	JULY	10000
	JUNE	0000	pharao	JUNE	0.0	didae	JUNE	0.00000	ringens	JUNE	11111111111111
atriventer	MAY	1111	Anotopterus	MAY	1	Paralepididae	MAY	0.011111	Lestidiops	MAY	100100010010100
Stomias	APR.	0000	Anot	APR.	0.0	P	APR.	00000001	Lest	APR.	200.00
S	MAR.	10.6		MAR.	4.7		MAR.	1111 1000 0.00 0.00		MAR.	
	FEB.	4 0 ° 0 ° 0 ° 0 ° 0 ° 0 ° 0 ° 0 ° 0 ° 0		FEB.			FEB.	#000111111		FEB.	24.77 24.77 24.77 24.77 26.00 111.4 15.11 15.11 15.11 15.11 15.11
	JAN.	10.0 4.5 0.0 4.6		JAN.	0.0		JAN.	10.24		JAN.	40010001000000
	STATION	103.3 65.0 103.3 70.0 103.3 80.0 106.7 35.0		STATION	110.0 100.0		STATION	70.0 73.3 86.7 86.7 86.7 90.0 93.3 70.0 100.0 45.0 100.0 45.0 100.0 100.0		STATION	60.0 60.0 63.3 63.3 63.3 63.3 63.0 63.7 70.0 70.0 70.0 70.0 70.0 73.3 70.0 73.3 70.0 73.3 70.0 70.0

	DEC.	1	ł	1	ı	ı	I	1	l	1	1	Į	1	1	I	ı	(1	ı	1	1		-	1 1	I	1	1	1	1	ŧ	I	I	ł	I	1	I		DEC.	1	I	!	1 1	
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	AUG.		ı	1	10	1	ı	J	ı	I	ı	ŧ	ŧ	l	ı	I	I	1 ;	1	i	l	1 1			1	ı	ı	i	ł	ı	l	ł	1	ŧ	ı	ı		AUG.	ŧ	ı	I		
(cont.)	JULY					0								0					0		8			\ . O	· -					. 0				0				JULY	0.0		0	1 0	
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ps ring	MAY		0.0				, 0	0		I	ala.	ı	1	Ţ	1	I	1	1	1	ł	ŀ	1	li	1 1	ı	ı	1	1	ı	ı	1	ı	ı	ı	1	ł	Notolepis	MAY	10.9			1 1	
Lestidiops ringens	APR.		5.0				0	0			0			6	0	0				0	0	0			0	4	9 1				- 0			4.7		0	Not	APR.	1.4			000	
L	MAR.		ı	ı	1	ł	I	1	ŧ		0.0	0	8		0		0		0	0.0		7.51	L	1 1			0 1	1 4					0			0		MAR.	1	1	ſ	1 1	l
	FEB.		0.0					0	0		I	ı	1	l		3.6	ı	1	1	1	Ì		0	000	0		ı	1	1	ı	ı	1	į	ı	Į	ı		FEB.	0.0			0	
	JAN.	1 .		0	0					- 4		0	0	0	0			6				0		0.0			0	4							0			JAN.	0.0				
	N.	0	0	0	0	0	0	90.	0	0	5	0	9	0.	3	0.0	0	o o	0	ů.		ກໍດ		0.00	D L	·	י		2.	0	0	0	5.	0	0	5		N	0	0.0	90.	100.0	00.
	STATION	9	6.	9	د	س	9	9	9	0	m	٠ س	m' i	'n	٥	96.	00.	000	000	000	000	000	900	100.0	200	900	32	03.	06.	06.	06.	.90	10.	10.	10.	10.		STATION	3	9.	٠,		٦,

TABLE 4. (cont.)

	DEC.	11111		DEC.	1 1	1	ı	I	1 1	ŀ		DEC.	1 1 1	1	DEC.	1111	ļ	1 1	1-1
	NOV.	00000		NOV.		1	1	I	1 8	4.8		NOV.	0.0		NOV.	1 1 1	ı i	l l	0.0
	OCT.	0.00		OCT.	0.0		0.0	5.2	0.0	ı		OCT.	00.0		OCT.	0000	10.1	0.0	0
	SEP.	11111		SEP.	ı	1 1	l	1	1 1	l F		SEP.	1 1 8		SEP.	1 1 1		1 1	i i
	AUG.	11111		AUG.	1	1 1	ı	1		1 1		AUG.	1 8 4		AUG.	1 1 1	i i	1 1	1 1
(cont.)	JULY	000000		JULY	0.0	1.01	5.2	0.0	0.0	0.0	a c	JULY	000	icris	JULY	10.0	0 0		
	JUNE	040000	rus spp.	JUNE		1	1 1			00.0	dentata	JUNE	4.5	ilov syi	JUNE	000	00	000	000
is risso	MAY		Scopelosaurus	MAY	4.9	0.0		0.0	1	1 1	Benthalbella	MAY		Rosenblattichthys volucris	MAY		l I	1 1	1 1 1
Notolepis	APR.	0.0 4.7 0.0 14.8	Scop	APR.		1 0		n n	0.0	000	Benth	APR.	0.0	senbla	APR.	0.00	0	000	000
	MAR.	0.00		MAR.		1	{	1		00.		MAR.	0.0	Re	MAR.	0.0	1 1		000
	FEB.	0.00		FEB.			00	0 0		1 1		FEB.			FEB.	0.0	0.0		1 1 1
	JAN.	000000		JAN.	0.0		0	0 (0	0.0		JAN.	0.00		JAN.	4.9		0 0	0 0 0
	2	55.0 40.0 60.0 100.0		ON	00	0.	0		90.	50.0		NO	40.0 70.0 40.0		NO	90.0	0.		000
	STATION	100.0 100.0 106.7 106.7 110.0		STATIO	0.0	3.3	9	٥٠	93.	110.0		STATIO	93.3		STATIO	90.0	00	03.	00

	NOV. DEC.		1	NOV. DEC.									1 1																				
	OCT.	01001000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	OCT.	0.0	0	10	0	ı		0.0	0	0			- 6	0.00				0	0			8		1	l			4.0		0
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TABLE 4. (cont.)

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Tri	MAR.		ı	ı		ı	ı	ł	1	ı		1			1	ê	1	ŀ	ı	1	1	1	1	ŧ		0		0	٠		0		ດໍດ	0		0	0		-			0	1	! !		0.0	
	FEB.							0		0		0	0		0		0	0		4				0		1	I	1	I	1	1	ı	1	i	ı	l	1 (1	1	i			0	7.0	a	1	
	JAN.				0		0 (0	0	0	0	0	0	0	0	0	8	0					0		0	- 0	0	0		0				e		0	0	0							0	0.0	
	STATION	0.0 60.	3.3 100.	6.7 55.	00.7	20.0	2.0 46.	2 2 40	3 3 40	2.5	2 2 55	200	200	000	2.00	3.3 IUU.	0.1 33.	6.7 35.	6.7 40.	6.7 45.	6.7 50.	6.7 55.	6.7 60.	6.7 90.	6.7 100.	0.0 28.	0.0 30.	0.0 37.	0.0 45.	0.0 53.	0.0 60.	3.3 26.	3.3 28.	2.3	2.2	2 2 20	2 2 AF	200	000	2 2 50.	200	2.2 /0.	2 2 2	2.5	67 7 9	96.7 30.0	

1	DEC.		
	NOV.	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	OCT.	00000000000000000000000000000000000000	
	SEP.		
	AUG.		
(cont.)	JULY	1255.22 250.22 41.4 41.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	
sauns	JUNE	04149901 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
s mexic	MAY		
Triphoturus mexicanus	APR.	00000110011000000000000000000000000000	
Trip	MAR.	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
	FEB.		
	JAN.	000000100001000000000000000000000000000	
	NO	10000000000000000000000000000000000000	1
	STATION	100666777777777777777777777777777777777	•

TABLE 4. (cont.)

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	NOV.		0	0	4.9		9	0	0	·		,	0	0.0				NOV	I	I	1	1	1	1	ţ	1	I	1		0.0	1				0							0.0	
	OCT.		ŧ	1	1	1	1	1	ı		l	ŀ	1	ŀ	1		- BOO	CCI.						- 0		0	10.1	3	0	ţ	1	1	l	1	1	1	1	1	I	1	I	1	1
	SEP.		I	}	1	1	I	1	1	1	l	I	i	l	1		2000	SEP.	1	}	1	1	1	I	1	1	1	1	1	I	ĵ	l	I	1	4	1	1	ı	ı	I	I	I	I
	AUG.		ı	ı	ı	ı	I	ŧ	1		1	I	I	l	I			AUG.	t	í	1	ı	f	l	1	I	(I	t	ı	I	ı	ı	I	í	1	ì	1	I	ŀ	I	ţ	l
(cont.)	JULY	1	0		58.0	6	7	V	·		٠ ٧ -	•	٠ د د		·		-	JULY						0		0	0							,		4	2	0	0	37.1	3	4	5
sanus	JUNE	1	0	0	26.6	6	. 4	7		· ·	94	000	00	. 7	0	dds shu	1 8	HUDE	ı	1	- 0				- 0		0.0	0	0					0						0.0			
s mexicanus	MAY		ı	1	t	1	1	1	ı		ļ	1	ı	†	ı	ogenichthus	100000	MAX	5.0		1	1	1	1	1	1	1	I	ı	1	1	I	1	}	1	ı	I	1	ı	ł	ı	ı	I
Triphoturus	APR.	1		4	0.0			0	0	2 0				8		Diod	1	APK.					- 6				0.0			0	0			1	1					0.0			0
Trij	MAR.				0	0	62.2								0			MAK.	ı	ı	1					0.0	l		0.0											0.0			
	FEB.		- 1	ı	1	ì	!	ŀ	1		1	1	ŀ	1	ŀ		The state of the s	EEB.									0.0			0.0	ı	l	I	ı	l	ı	ı	ı	ı	I	I	ı	I
	JAN.	}			0.0												10000	JAN.			0			0														0				0.0	
	STATION	700	10 0 32	10.0 35.	110.0 40.0	10.0 45.	10.0 50.	10 0 55	10.0	0.01	10.0	10.0	10.0 80.	10.0 90.	10.0 100.		TO THE WHO	STATION	6.7 90.	6.7 90.	3.3 80.	6.7 45.	6.7 55.	6.7 90.	96.7 100.	00.0 45.	00.0	00.0 100.	03.3 40.	03.3 100.	06.7 31.	06.7 40.	06.7.50.	06.7 55.	06.7 70.	06.7 80.	10.0 35.	10.0 45.	10.0 50.	110.0 60.0	10.0	10.0 70.0	10.0 100.

	DEC.	1	1	I	i	l		ı	1	1	1	1	1	1	ı	1	1	ı	I	1	1	1	l	1	1	1	1	1	1	1	ı	1	I		1	1	ı	1	ł	1	1	1	1	1	1	1
	NOV.	ı	ł	l	ŀ	1	l	1	ŧ	l	ı	I	ı	1	ł	1	1	I	1	1	1	1	1	1	ŀ	ı	1	1	1	I	i	ı	l	1		ı	ı	ı	1	1	1	ı	١	1	ı	ı
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	SEP.		1	1	I	1	1	I	I	1	ŧ	1	l	1	I	1	1	1	1	1	1	1	i	1	ı	1	ı	ŧ	1	ł	l	ŀ	I	ı	1 1	. 1	ı	ı	ı	1	ı	1	i	ŀ	ı	I
1	AUG.	 	ı	ļ	l	I	t	I	1	1	1	1	ļ	í	1	1	1	1	1	1	ı	ı	á	ı	1	1	1	1	1	I	1	ı	ļ	I	l 1	- 1	1	1	1	1	1	١	ł	ı	1	I
icus	JULY	0.0					0.0					- 0	9	- 0		- 0	0					- 0			0	- 6						0	0.0	8	8	0	0	0 1			0	1		0		
atlanticus	JUNE	1 1 1	I	ı	I	-	ı	I	ı	1	Ι	ı	1	1	ı	l	1	ŧ		0.0		1	1	ı									0.0	6	0	0	0	0		0	٠					0.0
chthys	MAY	1 .	0.0				10.0	0				0.0					- 0			ı				0.0		ŧ	1	ı	ı	ł	ı	ı	ţ	ı	!	1 1	: 1	ı	1	1	ı	1	ı	ı	1	ı
Diogenichthys	APR.	0.0	I	ı	ı	l	ì	1 4	0.0	l						- 4								21.3		0 0	1	1					0 0		0	0	8	0	0			0	0 (0 4		
I	MAR.		ı	1	ı	I	ı	I	1	1	1	ı	1	1	ı	ŀ	1	ı	ŧ	1	1	ı	1	ı	0.0	0.0)	ı	ı	0			0.0		I		ė			0				1	i	0.0
	FEB.	1	0.0			0		0		0	5		_	0							0 0			0 1	0	İ	- 0		5.0		1	ı	ı		0.0	0		1		1 (1	1				
	JAN.	1 .	0.0			0		0	0	0											0 1				0 1	0 0									4	0		0				0			0 0	1
	NOI	0 55	0 100.	7 65.	7 90.	7 100.	0 90.	0 100.	3 53.	3 90.	3 100.	7 90.	7 100.	060	יטטר מ	280	3 90	3 100	7 40	7 45	7 70.	7 80	200	7 100	30.7	37.	0 80.	0 000	0 100.	3 40.	3 45.	3 55.	3 60.	3 70.	3 90.	3 10U.	7 40.	7 4U.	7	7 50.	1 000	7 20.	7 80.	2 00	7 100.	0
	STATION	10	0	9	9	9	0	0	3	3	3	9	9			~	(1	م ر	2	2	2	2	2					0	3	3	m	3	m	m	7	١٩	0 4	0 4	04	04	D U	y c	2 (2 (2	100.

TABLE 4. (cont.)

	DEC.		DBC
	NOV.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NON.
	OCT.	220000 220000 20000 20000 20000 20000 20000 20000	OCT. 0.0 0.0 0.0 10.2 0.0 20.1 4.7
	SEP.		SEP
(-	AUG.		AUG.
(cont.	JULY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JULY 0.00 0.00 0.00 0.00 0.00 0.00 0.00
atlanticus	JUNE	15.8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00
	MAY	ththys	MAX
iogenichthys	APR.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	APR. 0.0 0.0 0.0 0.0 0.0 0.0
Dioge	MAR.	00.00 1.00.00	MAR. 0.0
	FEB.	112000111104000111111111111111111111111	FEB. 0.0 10.7 0.0 -0.0 4.1 4.1
	JAN.		JAN. 4.7 0.0 5.0 5.0 22.0 0.0 15.1 5.1 4.6
	ON	45.0 45.0 45.0 100.0	10N 3 80.0 7 80.0 7 100.0 7 100.0 6 50.0 80.0 80.0 90.0 90.0
	STATION	10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000	STATION 93.3 96.7 96.7 1000.0

			Dioge	iogenichthys		laternatus	(cont	()	1			1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
2 6 60	1		l	1		!		ı	1	- 0	ł	1
03.3 550	0.4	1			1	0.0	0.0	Î	ł	115.9	ı	ı
03.3 65.00			0		ł)		1	1		ı	I
03.3		. 4 	1		Į		- 0	I	I	ı	28.7	ı
03.3 80.			1	0.0	ı	4.8	- 0	ı	- Control	ı	6	ı
03.3 90.			1	0	1		0	1	1	1	4	Ī
03.3.100			ı		ı	- 0		ı	1	1	3	1
06.7 35.		-			1	- 0		1	I	1	- 0	ı
06 7 40	1	1	- 6		ı	0	- 6	ı	ŀ	ŀ		l
06.7 45.	- 1	1		- 0	ı			1	dean	ŀ		i
06.7 60.	1	ı			1	- 0		1		1	0	I
06.7 70.		ı		ı	1	0		1	1	ı		ı
06 7 80		ı	-	ı	I			1	I	ı	0	1
06 7 90		ı	- 0		I		0	1	ı	ı	4	1
06 7 100	0 (ı	1 0		adept		- 6	ı	ı	I	5	I
100 75	0	ı	1 -		ł	0	- 6	ı	ŀ	ı	0	ı
10.0	0	1	1		I	0		1	ŀ	1		ı
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10.0			0	6	i	0 -	1	ı	1	1		ı
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0.000 0.011		1	00	0.0	ı	0.0	0.0	ı	1	ı	40.6	ł
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				CIE	rectiona	200						1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
6.7 100.	0				٠.	1		ı	I	ı	ı	1
0.0 80.		0	1			ı		l	1	ı	ŧ	i
6.7 100.	0		ı	. 0		ı		I	ł		l	i
0.0 90.			ı	0.		i		ı	ı		1	1
3.3 80.			ı			ı		l	ı	0	1 1	} (
3.3 90.			ı			1			l		-1	1
6.7 90.		6	1 1	7.0	90	1 1		1	1		ı	ı
0.7 TUU.	0		1	0	> I		6 (I	ì		1	i
0.0			ı	0	1		10.0	1	i		1	1
0.0 100.			I		ı		ı	ı	ı		1	1
93.3 80.0	4.7	0.0	8	0.0	ı	000	0.0	I	1	000	1 1	1 1
3.3 90.			1 1	0 -	1 1	0 -	0 0	1	1	0 0	ı	ı
6.7 100.			ı		į			ı	1		ł	1

TABLE 4. (cont.)

1	DEC.	1 (1	DEC.	1 1	1	l t	1		â	1	ı	l		DEC.	1111		DEC.	1111111
	NOV.	1 1		NOV.	1 1		0.0	0	0		0	0.0	0		NOV.	1 4 8		NOV.	104070000
	OCT.	0.0		OCT.	4.7		1 1	ı	1 1	1	1	I	ţ		OCT.	0.00		OCT.	2.0
	SEP.	1 1		SEP.	i 1	1	l I	1	1 1	1	i	1	l		SEP.	1111		SEP.	11111111
	AUG.	1 1		AUG.	1.1	ı	ł [ı	1 1	{	ı	ı	I		AUG.	1111		AUG.	11111111
(cont.)	JULY	0.0	sn	JULY	0.0	0	0 0			0 0			0		JULY	0000		JULY	000000000
	JUNE	5.0	tenuiculus	JUNE	0.0	000	0 0	- 0	0	0 0			0	m spp.	JUNE	0.0	atratum	JUNE	0.0000000000000000000000000000000000000
na ris	MAY	1 1		MAY	1 1	1	1 1	1	1 1	1	ı	1	I	Hygophum	MAY	0.0	Hygophum	MAY	1 1 1 1 1 1 1 1 1
Electrona rissoi	APR.	0.0	Gonichthys	APR.	0.0	0.00	0 0	0		0 0			0	H	APR.	0000	Hyg	APR.	000000000
7	MAR.	0.0		MAR.	0	0 0	0.0	0.0		0.0	0.0	4.0	0.0		MAR.	0.0		MAR.	0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	FEB.	0.0		FEB.	0.0	0.0	1 1	1		1	ı	I	Į		FEB.	5.2		FEB.	0.00
	JAN.	0.0		JAN.	0.0		0 0	- 0	0			0.0	0		JAN.	0000		JAN.	40000000000000000000000000000000000000
	NC	70.0		NC	100.0		0.0	ng o		0	0.	90.			NC	70.0 100.0 70.0 65.0		NC	1000.0 1000.0 500.0 600.0 600.0 855.0
	STATION	100.0		STATION	100.0	030	06.	10.	0.0	10.	10.	10.	T 0.		STATION	86.7 96.7 103.3 110.0		STATION	103.3 103.3 106.7 106.7 110.0 110.0

DEC.		 	DEC.	111111		DEC.	1111111111
NOV.	1		NOV.	00.00		NOV.	0.0
OCT.	00000000		OCT.	000		OCT.	100.00
SEP.			SEP.	111111		SEP.	
AUG.		 	AUG.	111111		AUG.	1 1 1 1 1 1 1
ii JULY			JULY	000000	EII.	JULY	0000000000
nhardt	097000000000	rara	JUNE	00000	nitidulum	JUNE	000000000
Hygophum reinhardtii	000	Loweina	MAY	10.3		MAY	0.01111111111
Hygop APR.	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LC	APR.	0.0000	Myctophum	APR.	m 00000000
MAR.	0 0000000		MAR.	0.0		MAR.	0.00
FEB.			FEB.	00 0		FEB.	0.00 0.0
JAN.	1000400001 0000000000000000000000000000		JAN.	0.0000000000000000000000000000000000000		JAN.	0.04 0.00 0.00 0.00 0.00 0.00 0.00 0.00
STATION	13.3 90.0 13.3 90.0 13.3 100.0 13.3 100.0 16.7 100.0 16.7 70.0 16.7 70.0 16.7 100.0 16.0 45.0 10.0 70.0		ATION	0.0 55.0 3.3 100.0 3.3 70.0 6.7 35.0 6.7 45.0		ATION	6.7 100.0 3.3 45.0 3.3 70.0 6.7 100.0 6.7 100.0 0.0 100.0 3.3 60.0
ATION	.3 100. .3 100. .3 100. .7 100. .7 70. .7 70. .7 70. .7 100. .0 45.		STATION	0 100 3 70 3 70 7 35 7 45		STATION	7 100.

TABLE 4. (cont.)

1	DEC.	111111		DEC.	1 1	1	i l	ı	i	1 1	I	ı	i t	ı	1	1	1	ŧ	1	1 1	i	l	ł	1	9	łi	1	1	-	1 1	
	NOV.	400000		NOV.	1 1	1		ı	1	i 1	1	1	1 1	1	ı	1 1	1	1	1		1	1	1	ı	1	1	i	1	f	1 :	ì
	OCT.	1 1 1 1 1 1		OCT.	0.0	1 -	10.5	0.0	9.00	B C C	•	11.1	0	0.0	0.0	0.0	0.0	0.0	1		0.0		0.0	l	1		8	9.6		5.1	
	SEP.	1 1 1 1 1 1		SEP.	1 1	I	1 1	1	1	1 1	ı	I	1 1	1	ı	1 1	1	1	í	1 1	1	I	Į	t	1	1		ı	ı	Į	1
	AUG.	111111		AUG.	1 1	ſ	l I	1	I	1 1]	1	1 1	1	1	1 1	1	ı	ı	i	1	1	I	ŧ	\$	\$ 1	1 1	1	1	1	1
(cont.)	JULY	000000	eri	JULY	0.0			0 6	10.1	0	6	0.	0 1	0 0	0.0				21	0	0.0		0		0,0			10.3	1	0.0	6
	JUNE	000000	m crockeri	JUNE	1 1	1	400	1	ı	1 1	1	ł	1 1	1	1	1 1	1	Į	ı	1	1	1	i	1	I	ĺ		1	1	1	1
n nitid	MAY	11111	Protomyctophum	MAY	0.0		0		0.0		0		0	0	10.2			0	0.0	6	00.		- 6	0	20.0			• 		0.0	1
Myctophum nitidulum	APR.	000000	Protom	APR.	10.1		10.8	l I		000	0	0.0	1 1		0		0.0)	1		12.2		0.0	ı	1		0	00.0		0.0	į
My	MAR.	NO0.00 WOOOO		MAR.	1 1	1	1 1	l é	1	1 1	ı	454-0	1 1	1	ı	1 1	1	ı	I	1	1	1	1	1	I	ı	l t	1	1	8	ı
	FEB.	0.00		FEB.	0.0	5.		0 0	4							0.	- ω			0			0	φ,		0	0 <	10.	4		0
	JAN.	0400N0N		JAN.	12.8				0.0		1 1	0	0.0 7.0 7.0	}			m		0		U 10 4 10 4 10	ŀ		0				21.8	1	0.0	0
	Z	90.0 100.0 35.0 90.0 100.0 70.0		Z	55.0	5.	0		0.	, ,		0.0		0	5	П	0	0	90.	° -	0.	5.	0	0	0	÷	٥,	0	5.	0	ů
	STATION	103.3 106.7 106.7 106.7 110.0		STATION	60.09	0.	0	00	0		 n	33	7	9	9	٥		9	9	0 0		0	0	0	90	٠ د د			3.	ر د د	ຕ

	DEC.	1	I	1 1	1	I	ł	1	1	1	1	1	i	l	1	I				ı	1	1	1	ł	ı	! !	I	1	ì	1	l	I		- 1	1	1	1	1	l	1	1	1	
	NOV.	1	t] [1	1	1	1	l	ì	1	1	1	ı	ı	ł	1	1 1	1	i	1	ı	ı	1	l	1 1	i	1	i	ı	I	l	1 1	- (I	1	1	1	ı	ı	1 1	1	
	OCT.			J	0	0	20.4	1	1	0.						٠	0	0						0.0		4	0 1		- 0			ı		0	0.0				0			4	
	SEP.	***	I	l i	1	1	ŀ	ı	ı	ı	ı	l	į	ı	1	1	1	1		ı	ı	ı	1	l	1	1 1	l	ı	1	ı	ı	ı	t i		1	ı	1	ı	ı	ŀ	1	1 1	
·	AUG.	i	1	1 1	1 1	ı	1	1	1	1	Ι	I	I	ı	1	ı	ŧ	i	1 1	1	1	ı	1	1	ŀ	1 1	I	ı	l	1	ı	ı		+ 1	ı	1	1	ı	ı	i	1		
(cont.	JULY		0,	21°9	:	-				- 0	6	11.2		8		0	0	0		0	0 6	0	0											0	0 0							10.0	•
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beania	MAY	1	20.6		0.0	0.0	0.0	0.0	12.0	0.0	0.0	$\frac{51 \cdot 1}{2}$	10.7	0.0	10.4	0.0	0.0	33.8	0.0		0.0	0.0	0.0	0.0	0.0	0.0	10.9	1	ł		Synodus	MAY			MAY	0.0		20,00	0 0
Tarletonbeania	APR.	13.6	0.0		10.8	1	0.0	0.0	0.0		10.5		0		0.0				0	10.4								0		0.0	Οĵ	APR.	0.0	Merluccius	APR.	131.6	100	2.101	10.1
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TABLE 4. (cont.)

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.5					APR.	MAY	JUNE	JULY	AUG.		OCT.		DEC.
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Ophidiiformes JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. Brosmophycis marginata JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. -0 0.0 0.0 - 0.0 0.0 - 0.0 0.0 - 0.0 0.0	0	0	ū	1		0		0			0		1
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Ophidiiformes JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. 0 0.0 0.0 0.0 0.0 0.0 5.2 - 5.2 0.0 - 0.0 0.0 - Brosmophycis marginata JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. 0 0.0 0.0 0.0 - 0.0 0.0 - 10.0 - 0.0 0.0 -	6		0				0				0		
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. 0 0.0 0.0 0.0 0.0 0.0 5.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0					0	phidii	formes						
.0 0.0 0.0 0.0 -0.0 5.2 - 5.2 0.0 0.0 0.0		JAN.	FEB.	MAR.	APR.	MAX	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
.0 0.0 - 0.0 5.2 - 0.0 0.0 - 0.0 - 0.0 - 10.0 - 10.0 - 0.0 -	1	!	1				1				1		
Brosmophycis marginata JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. .0 0.0 - 0.0 - - 0.0 -		0 0	0	0.0	2.2	ı	6 6	0.0	1	ı	0 0	ĺ	ĺ
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JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV.					Brosmc	phycis	margin	ata					
0.0 0.0 0.0 - 0.0 0.0 - 0.0 0.0 - 0.0 0.0		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
$^{\circ}$ 0.0 0.0 $^{\circ}$ 0			3										-
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TABLE 4. (cont.)

			Bros	smophyc	Brosmophycis marginata	yinata	(cont.					1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
76.7 60.0	0.0	0.0	0.0	00.0	0.0	5.2	10.8	1 1	1 1	0.0	0.0	1 1
				Ch	Chilara t	taylori						
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
96.7 30.0	0.0		9.3	0.0		0.0	0.0	1	ţ	0.0	ł	ł
				Ophi	Ophidion s	scrippsae	٩					1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
86.7 33.0	0.0	0.0		0.0		0.0	0.0		ı	5.1	ı	1
					Ceratioidei	oidei					1	1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
86.7 70.0 93.3 90.0 96.7 60.0 96.7 80.0	00000	00 00	0.0	00000	0.0	0000	00000	1111		22.1 4.90 4.88	11111	11111
0.0 80. 6.7 80.		0 0	0.0	0.0	1 1	0.0		1 1	1 1	8.2	5.2	1 1
					Gobiesocidae	cidae						
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
103.3 29.0	0.0		0.0	0.0	! I	0.0	9.7	1 [l I	0.0	1 1	1 1
					Exocoetidae	tidae						1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
93.3 35.0 96.7 50.0 100.0 45.0 106.7 35.0 106.7 40.0 1106.7 45.0	0000000	1111111	0000000	0000000	1 1 1 1 1 1 1 1	00040000	10.2 9.3 9.5 0.0 5.0 10.0	1111111	1 1 1 1 1 1 1 1	00001111	0000	1 1 1 1 1 1 1 1

TABLE 4. (cont.)

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	DEC.			DEC.																DEC					DEC.	
	NOV.	0.0		NOV.		ı	1 1	1	ŀ	ı	1 1	: 1	ı	ŀ	ı	l	i i	0.0		NOV.	1 1		0.0		NOV.	11111111
	OCT.	ı		OCT.	0.0	ı	10		ı	10	0.0	0	. 1	0.0	0.0	0.0	0.0	1		OCT.	0.0	0.0	1		OCT.	0 000 0 0
	SEP.	1		SEP.		ı	l I	1	ı	ı	1 (i	ı	ı	ı	ı	Ιİ	ı		SEP.	L	ı	ı		SEP.	111111111
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(•	JULY	4.7		JULY	0.0	1 0	000	00	1	0.0	0.0		00.0	0.0	0.0	000	000	0.0		JULY	0.0	0.0	0.0		JULY	10.0 120.0 10.0 0.0 0.0
(cont.)	JUNE	0.0	saira	JUNE		I	1 1	1	1	ı	1 1		0.0	0.0	0.0	0.0	0.0	0.0	idae	JUNE	1 1	0.0	0.0	ridae	JUNE	11111111
Exocoetidae	MAY	ı	Cololabis	MAY	0.0	1 0	000	0.0	1	0.0	1 0			1	ı	ı	1 1	ı	Atherinidae	MAY	0.0		ı	Trachipteridae	MAY	000001001
Exoc	APR.	0.0	COJ	APR.		1	10	• 1	ı	ı	1 0		0.0) • •	۳. د ه	4.7	4° C	0.0		APR.	7.0	000	0.0	Tr	APR.	0.001110
	MAR.	0.0		MAR.		ı	1 1	l t	1	ı	ı	l t	1	1	4	0.0))))		MAR.	i 1	3.8	i		MAR.	11111111
	FEB.			FEB.	4		o o o c	8 0				8		4		ı	1-1	4.4		FEB.	6.9		ı		FEB.	0.0 19:5 10:0 11:0 7.6 8 8 8 8 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1
	JAN.	0.0		JAN.	0.0	1		0.0	1				0 0	0				0 0		JAN.		ο en ·			JAN.	00000 00 W
	NC	90.0		N	0	65.	00	000	65.	00.	000	000		. 0	0.	٥.	45.0	0		N	ω u	29.0	2.		N.	100.00 100.00 100.00 100.00
	STATION	110.0		STATION	0	ش	m y	90	0	0.	, ,	٥٠	, 0	0	3	96.	103.3	03.		STATION	9.	103.3	10.		STATION	60.0 63.3 66.7 70.0 70.0 70.0

1	DEC.	111111111	DEC.	
	NOV.	111111111	NOV.	
	OCT.	000 000000	OCT.	00000 10 0 10 00 00 00 00
	SEP.	11111111	SEP.	
	AUG.	11111111	AUG.	
it.)	JULY	0.0000000000000000000000000000000000000	JULY	
Trachipteridae (cont.)	JUNE	0.0 0.0 - 0.0 - 0.0 - 0.0 - 10.7 - 10.7 - 0.0 - 0.0 - 0.0	JUNE	0.00
pterid	MAY	0.0 0.0 0.0 - - - - - - - - - - - - - -	MAY	0000 0000 0000 0000 0000 0000 0000 0000 0000
Trachi	APR.	00000000000000000000000000000000000000	APR.	10.0 10.0
	MAR.	10.3	MAR.	
	FEB.	80000 60 80000 60	FEB.	10000000000000000000000000000000000000
	JAN.	0.0000000000000000000000000000000000000	JAN.	
	STATION	73.3 70.0 80.0 100.0 86.7 80.0 90.0 90.0 93.3 55.0 93.3 80.0	STATION	60.0 70.0 653.3 55.0 663.3 55.0 663.3 55.0 663.3 70.0 665.0 70.0 70.0 70.0 70.0 70.0 73.3 70.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 76.7 65.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0 8

	DEC.	,	ı		ş	ı	1	ı	1	ı	ı	1	ı	l	I	í	I	I	I	1	1	ı	ı	1	ı	1		DEC.	1	ş	1	ı	6 1	1		1	DEC.	1-1
	NOV.	١	ı	1 1	ı	ı	1	ı	ı	ŧ	i	ı	ı	ł	8	ı	ı	1	ł						0.0			NOV.	ı	ı	ı	I	lí	0.0			NOV.	1 1
	OCT.	0.0		, 0					0.0			- 0	6				- 0	0		ı	ı	1	ı	1	1	1		OCT.	1	0.0	0.0	0.0		0.1			OCT.	0.0
	SEP.	1	i	1 1	1	1	ı	ı	1	ı	ŀ	ı	ł	I	ŀ	ı	í	ı	ı	1	1	ı	ļ	1	1	ŀ		SEP.	ı	1	ı	I	1 1	1 1			SEP.	1 1
	AUG.	ı	i		1	1	1	i	ş	ı	ı	1	ł	1	ı	ſ	i	ı	ı	1	+	ļ	1	1	ŀ	l		AUG.	1	1	ı	ı	l (1		 	AUG.	1 1
nt.)	JULY	10.0																							0.0			JULY		10.0			8	0.0		us	JULY	0.0
spp. (cont.	JUNE	0.0			0	2.6				5.0	6		9	0	6		6	0	0	0					5.0	0.0	a spp.	JUNE		0.0	0			0.0	,	robustus	JUNE	9.7
	MAY		ı	1	l f	ı	ı	ı	1	ı	ı	1	ı	1	ı	ı	I	t	ı	ı	1	ł	ı	1	ı	ı	Poromitra	MAY	5.0	1	1	ı	1 1	1 1	,	Scopeloberyx	MAY	0.0
Melamphaes	APR.		1 9														0	- 0	0.0	- 0			- 0		0.0		Pc	APR.	! 	\$	4.9	0.0	1 0	4.7		Scope	APR.	5.3
	MAR.	ļ	ü			8	1	5,3	0.0		ı	ı	0.0	0.0		1	1	10.1	5.1	1	-	0.0	-		0.0			MAR.		ı	I	ı		0.0			MAR.	0.0
	FEB.	4.8	ı	1			0.0		ı			- 8	ı	ł		5.1		1		0.0		1	ı	1	ı	ſ		FEB.		1 4	0.0			1 1			FEB.	0.0
	JAN.	0.0		9								- 1			0	0		8							0.0	0		JAN.	! .				0	0.0			JAN.	0.0
	STATION	06 0	3.3 28.	3.7 40.	3.3 50.	2.2	3.3	6 7 32	6.7 55.	6.7 60.	6.7 80.	6.7 90.	00.00 40.	00.00	00.00	00.00	00.00	03.3 55.	03.3 60.	03.3 80.	06.7 70.	06.7 90.	10.0 40.	10.0 45.	0.0 50.	10.0 55.		STATION	6.7 100.	0.0	0.0 100.	93.3 90.	00.0	106.7 40.0			STATION	86.7 100.0 96.7 70.0

TABLE 4. (cont.)

	DEC.	1111111111		DEC.	I	1	DEC.	1 1		DEC.	1 1 1		DEC.	11111111
	NOV.	00000 00000		NOV.	9.7		NOV.	11		NOV.	1 {		NOV.	1111111
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	SEP.	11111111111		SEP.	j		SEP.	i i		SEP.	111		SEP.	111111111
	AUG.	1 1 1 1 1 1 1 1 1 1 1 1		AUG.	1		AUG.	1 1		AUG.	1 1 1		AUG.	1111111
sns	JULY	0000000000	lis	JULY	0.0		JULY	0.0		JULY	080		JULY	0.0 0.0 0.0 0.0 0.0 21.3 11.1 0.0
bispinosus	JUNE	000000000	s gracilis	JUNE	0.0	is spp.	JUNE	0.0	dae	JUNE	0.0	dae	JUNE	11111111
	MAY	0.0	Macroramphosus	MAY	ı	Syngnathus	MAY	11	Agonidae	MAY	11.1	Cottidae	MAY	00000000000000000000000000000000000000
Scopelogadus	APR.	W000040000.	Macror	APR.	0.0	Sy	APR.	17.6		APR.	000		APR.	28.0 28.0 28.0
	MAR.	0.0000000000000000000000000000000000000		MAR.	0.0		MAR.	0.0		MAR.	3.8		MAR.	1111111
	FEB.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		FEB.	ı		FEB.	0.0		FEB.	0.0		FEB.	0.0000000000000000000000000000000000000
	JAN.	000000004		JAN.	5.0		JAN.	0.0		JAN.	000		JAN.	00000000
	STATION	83.3 100.0 95.7 90.0 100.0 60.0 100.0 100.0 103.3 90.0 106.7 35.0 110.0 80.0		STATION	110.0 80.0		STATION	86.7 33.0 96.7 29.0		STATION	80.0 60.0 86.7 33.0 103.3 29.0		STATION	60.0 60.0 63.3 73.3 76.7 80.0 82.0 83.3 55.0 83.3 55.0

	DEC.	111111		DEC.	11111		DEC.	1 1 1 1		DEC.	11111		DEC.	1
	NOV.	11111		NOV.	11111		NOV.	0.0		NOV.	0.0		NOV.	ı
	ocr.	46.0 0.0 0.0 0.0		OCT.	000 000		OCT.	0000		OCT.	00001	1	OCT.	0.0
	SEP.	11111		SEP.	11111		SEP.	1111		SEP.	t !	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SEP.	ŧ
	AUG.	i i i		AUG.	1 1 1 1 1 1		AUG.	1 1 1 1		AUG.	1111		AUG.	8
	JULY	26.5 16.6 37.4 0.0	ratus	JULY	000 00		JULY	0000	 	JULY	00000		JULY	0.0
(cont.)	JUNE	29.1 29.0 0.0	marmoratus	JUNE	0.0	pictus	JUNE	0.0	s spp.	JUNE	0.00	s spp.	JUNE	0.0
Cottidae	MAY	111111	ichthys	MAY	000 0	Oxylebius	MAY	0.00	Zaniolepi	MAY	000111	Scorpaena	MAY	
Cot	APR.	54 0 0 0 0 0 0 0 3 7	Scorpaenichthys	APR.	000000	Oxy.	APR.	0000	Za	APR.	00000	Sc	APR.	10.5
	MAR.	000	Sc	MAR.	0.0		MAR.	1111	 	MAR.	5.2		MAR.	0.0
	FEB.	000		FEB.	21.4 0.0 4.4		FEB.	0.00		FEB.	11.3 4.3		FEB.	
	JAN.	000000		JAN.	7.8		JAN.	10.2		JAN.	40040 80040		JAN.	0.0
	2	33.0 40.0 50.0 26.7 29.0		7.	49.0 53.0 70.0 30.0		7.	55.0 33.0 32.4		7.	49.0 51.0 35.0 35.0		7	45.0
	STATION	86.7 86.7 86.7 93.3 96.7		STATION	66.7 70.0 73.3 80.0 80.0		STATION	80.0 83.3 86.7		STATION	66.7 83.3 86.7 86.7 110.0		STATION	93.3

1	DBC.	
	NOV.	
	OCT.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	SEP.	
	AUG.	
	JULY	282 200 200 200 200 200 200 200 200 200
spp.	JUNE	
Sebastes	Ϋ́	000
Seba	MAY	3 2 2 1 1 2 2 2 1 1 3 3 1 1 1 2 2 2 1 1 1 3 3 1 1 1 1
	APR.	27000000000000000000000000000000000000
	MAR.	
	FEB.	11000 1231 1231 1531 1531 1500 1500 1000
	JAN.	88885.77 68885.77 6887.77 100.00 1
	STATION	000000000000000000000000000000000000000

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	AUG.	ŧ I	1 1	I	1	}	t	ł	1 1	1	ı	L	1 1	1	ı	l	l I	ı	1	l I	1	I	ì	l I	ł	1	1	ŧ	1 1	1	1	ı	1 1	1 1	1	1 1	
t.)	JULY	01	0 0	4	٠ د د	· -		0				0					0.0	- 4		4 0	0			0.1				0								000	
Sebastes spp. (cont.)	JUNE	E	1 1	1	i i	li	ı	10			6	-: 0		1	1		00.0	0.	0				00											0 1		0.0	0
tes spi	MAY	10	0 (9					1 1	ı	1	ŀ		ı	32.4	4	1 1	I	1 1	I I	1	ı	I		1	1	1	i	1 1	ı	ı	1	L	1 1	Ι	1 1	
Sebas	APR.	10.2	0 6				0 0	0.	٠,	0 0	41.	40.	200	1	0		9.6	0.		li	0.0		0.0		- 4			ى رى		0		φ.		0 00		4.7	
	MAR.	1 1	1 1	١	1	1	1	1	I I	ı	1	I		ı	1		36.2 85.2		000	150 150 100 100 100 100 100 100 100 100		l		°-	4 0	4.	5	00		8 6		6		0 -		0.0	0
	FEB.	20.2	y C	5	9 1	n =	0.0	0,		0 8	99.	40) A.	0	0.00	9	1 1	ı	1	1 1		0.0	0	1 1	1	1	I	I	1 1	1	ı	1	1		1	1 1	
	JAN.	0.0	0 (8	2	•	0 0			1:	34.	90								0 0			00				0		0	0 0				0 0		0.0	0
	NO	70.0	90	2		n c	0	0.	د	0	5.	O u		5	0	_ 0		5	٠ د	20	0	90.	0,	0 a		0	٠ د	O L	0 C			6	O c		'n	00	•
	STATIO	80.0	35		<u>ش</u> ر	'nĸ	°°	m'	ه د	9	9	٥	9	9	9	ء م		0			0	0.0	0.0		, ,	3,	o M		n c	i c	3	9	o u	• •	6		

TABLE 4. (cont.)

	DEC.		DEC.		DEC.	11111
	NOV.	000000000000000000000000000000000000000	NOV.	11111	NOV.	1 1 1 1 1 1
	OCT.	10.77 00.00 00.00 00.00 00.00 00.00	OCT.		OCT.	000010
	SEP.		SEP.	11111	SEP.	11111
	AUG.		AUG.	1111	AUG.	11111
(•	JULY	000000000000000000000000000000000000000		1000040	JULY	000000
spp. (cont.	JUNE	aurora	JUNE		JUNE	0000
	MAY	00 00 00 00 00 00 Sebastes	NI	.0 0.0 .0 10.5 .0 - .0 - .0 - .0 - .0 -	MAY	0000111
Sebastes	APR.	17.22 17.22 17.22 75.00 0.00 0.00 0.00 0.00	APR.	0.0 10.4 0.0 0.0 0.0	APR.	0.0 0.0 10.9 21.1
ı	MAR.	21.5 5.4 5.4 66.4 66.4 7.1 21.1 37.0 0.0 187.6 5.2	MAR.	0 0 0	MAR.	0.0
	FEB.	1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	m !	01000000	FEB.	32.9 0.0 0.0
	JAN.	000011	Z!	000000	JAN.	000000
	STATION	100.0 100.0 100.0 100.0 100.0 100.0 100.0 103.3 103.3 103.3 103.3 103.3 106.7 106.7 106.7 106.7 106.7 106.7 106.7 106.7 106.7 106.0 110.0 10	ATION	76.7 90.0 80.0 70.0 86.7 35.0 86.7 40.0 93.3 50.0	STATION	60.0 52.5 63.3 70.0 76.7 80.0 86.7 40.0 90.0 60.0

	DEC.	1		DEC.	1 1	!	DEC.	i	i	ı	1	1	1	1 1		1	ı	ı	l	I	1 1		ı	ı	ı	ı	ı	1	I	1	1 1		1	ı	1
	NOV.	1		NOV.	0.0		NOV.	1	1	1	l	ı	1	1 1		1	1	1	I	ı	1	1	1	1	ı	1	1	ı	1	ı	1 1	1	li	ı	I
	OCT.	0.0		OCT.	0.0		OCT.		0.0	ı				0			0 0							- 0				- 0		0.0	0	1 1		0.0	
	SEP.	ı		SEP.	1 1		SEP.	1	ı	ı	ı	ı	1	t i)	1 1	ı	ı	ı	i	1 :	H	ı	ı	1	ı	ł	1	ı	ı	1 (1 1	1 1	ı	1
	AUG.	ı		AUG.	1 1		AUG.	 	١	1	ı	1	ı	1 1	1	i	ı	ı	ı	1	1	1	. 1	ı	ı	ı	ı	i	1	ı	I	1 1	1 1	ı	ı
	JULY	0.0	i	JULY	0.0	S	JULY		0.0	ı											0.0				- 1	0.0							000		0.0
levis	JUNE	0.0	macdonaldi	JUNE	5.0	paucispinis	JUNE		ı	ı	ı	1	ı	1	1	1 1	ı	i	1	ı	ì	1 1		1	0.0		0.0						000		
Sebastes	MAY	ı		MAY	1 1	tes pan	MAY		0.0	ı	0.0				1 0	000	0 0				0.0			10.9)	1	ı	1	ı	ı	ı	ı	1 1	1	ı
Se	APR.	0.0	Sebastes	APR.	0.0	Sebastes	APR.	1 -	0.0			0.0			0.0		0.0			0 0	0.0		0.0	-		10.5	0.			0.0	t				0.0
	MAR.	4.8		MAR.	15.6		MAR.		i	ı	î	t	ı	ı	1	ll	1	ı	1	ı	ı	1		ı	١	1	١	ŀ	1	9.5	υ. 4.				11.2
	FEB.	,		FEB.	1		FEB.	1 .		00	5		-		0	0.0	0 0	0	8	0	å		· -		· -	0	0	ω	0	1	1	1 0	30.9	1	ł
	JAN.	0.0		JAN.	0.0		JAN.	!	0.0		1				0	000		- 4	ı		0.0	Or			0	27.9	0					0		0	00
	STATION	0.09 7.96		STATION	96.7 60.0 110.0 40.0		STATION	0 0 55	3.3 60.	3.3.65.	6.7 50.	6.7 55.	6.7 60.	6.7 80.	3.3 60.	3.3 90.	6.7 55.	6.7 60.	6.7 65.	0.0 60.	2.0 46.	3.3	3.3 60.	2.2	6 7 35	6.7 40.	6.7 45.	6.7 50.	6.7 65.	0.0 28.	0.0 53.	0.0 60.	0.0 70.	5.3 /0.	96.7 40.0

1	DEC.	111111111111	DEC.	1 1 1	1	DEC.		DEC.	1 1 1
1	NOV.		NOV.			NOV.	0.00	NOV.	1 1 1
	OCT.	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	OCT.	0.0		OCT.	000000004	OCT.	0.0
 	SEP.		SEP.	 		SEP.		SEP.	1 1 1
	AUG.		AUG.		time time was the both time due to	AUG.	1111111111	AUG.	1 1 1
	JULX	000000000000000000000000000000000000000	JULY	0.0	•	JULY	111.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JULY	000
dds sno	JUNE	0.0 0.0 0.0 5.0	JUNE		ins spp	JUNE	2000 456.9 400.0 32.2 100.0 190.0 8.8	JUNE	1 1 1
Sebastolobus spp.	MAY	10.0 10.9 10.6 10.7 0.0 8.9 20.8 - 0.0 - 0.0 - 0.0 - 0.0	MAY	00.00	Hypsoblennius spp	MAY	8.3 0.0 	MAY	34.1
Seb	APR.	0.06600000	APR.	4.4	Hyps	APR.	00000000000	APR.	21.0
	MAR.	00.00	MAR.			MAR.	00 00080	MAR.	1 1 1
	FEB.	000000000000000000000000000000000000000	FEB.	20.3		FEB.	0000	FEB.	13.3
	JAN.	0000000000000	JAN.	0.0		JAN.	000000000000	JAN.	0.00
	STATION	60.0 80.0 63.3 80.0 66.7 70.0 76.7 70.0 76.7 80.0 76.7 80.0 83.3 90.0 86.7 90.0 96.7 70.0 96.7 55.0	STATION	60.0 50.0 83.3 51.0		STATION	83.3 40.6 83.3 42.0 86.7 33.0 90.0 33.0 90.0 35.0 93.3 26.7 93.3 26.7 96.7 32.0	STATION	63.3 50.0 73.3 50.0 76.7 48.0

	DEC.	1111111		DEC.		ı ı t	DEC.	111		DEC.	1-1		DEC.	I
	NOV.	0.0		NOV.	111111111	26.2	NOV.	111		NOV.	0.0		NOV.	ı
	OCT.	19.0		OCT.	18.2 0.0 0.0 0.0 22.3 0.0 0.0		OCT.	0.0		OCT.	0.0		OCT.	0.0
	SEP.	1 1 1 1 1 1 1		SEP.	11111111	1 1 1	SEP.	111		SEP.	1 1		SEP.	1
	AUG.	1111111		AUG.	1111111	1 1 1	AUG.	1 1 1	1	AUG.	1 1		AUG.	ı
	JULY	00000001		JULY	29.7 29.7 21.9 21.9 4.5 11.0 17.7 0.0	000	JULY	33.1		JULY	4. E.	za.	JULY	9.6
(cont.)	JUNE	1 30 2000	lae	JUNE	00.0	0.0 0.0 0.0 aeniqmaticus	JUNE		s spp.	JUNE	0.0	californica	JUNE	ļ
Clinidae	MAY	0.0	Gobiidae	MAY	0000000	1 1 1	12	0.0	Halichoeres	MAY	0.0		MAY	0.0
Cli	APR.	26.0 8.8 0.0 0.0 0.0		APR.	0.00 0.00 0.00 0.00 0.00 10.4	0	APR.	0.0	Hal	APR.	0.0	Oxyjulis	APR.	0.0
	MAR.	27.8 3.8 0.0		MAR.	 	37.2	MAR.			MAR.	0.0		MAR.	1
	FEB.	15.2		FEB.	000000000000000000000000000000000000000		FEB.	0.0		FEB.	0.0		FEB.	0.0
	JAN.	0000000		JAN.	m0000000	4 4 9	JAN.	0.0		JAN.	00.0		JAN.	0.0
	STATION	83.3 51.0 86.7 50.0 96.7 30.0 103.3 29.0 103.3 30.0 110.0 32.4		STATION	60.0 60.0 73.3 76.7 83.3 83.3 842.0 883.3 86.7 33.0	3.3 30. 0.0 32.	STATION	66.7 49.0 66.7 65.0 80.0 70.0		STATION	83.3 40.6 106.7 31.0		STATION	76.7 48.0

TABLE 4. (cont.)

	DEC.	1111111111	1	DEC.	111		DEC.	11111111	1	DEC.	1111
	MOV.	11111111111		NOV.	111		NOV.	0000		NOV.	1111
	OCT.	0000000004000	1	OCT.	000		OCT.	0000000111		ocr.	0 000
	SEP.			SEP.	111		SEP.	11111111		SEP.	1 1 1 1
	AUG.	11111111111		AUG.	111		AUG.	111111111		AUG.	1111
(cont.)	JULY	555.7 265.7 192.7 199.3 70.0 54.9 0.0 0.0 0.0 0.0	er	JULY	19.0	is	JULY	222.2 244.5 46.3 46.3 16.0 10.0 20.2 0.0	ns 	JULY	00000
	JUNE	910000000000000000000000000000000000000	s pulcher	JUNE	0.0	punctipinnis	JUNE	100000000000000000000000000000000000000	symmetricus	JUNE	1 1 1 1 1
californica	MAY	00000000	Semicossyphus	MAY	0.0		MAX	•	- 1	MAY	21.8 128.8 11.3 0.0
Oxyjulis	APR.	000000400000	Semico	APR.	000	Chromis	APR.	000000000	Trachurus	APR.	0.0 0.0 21.2 5.4
ix0	MAR.	00		MAR.	0.0		MAR.	0000000		MAR.	11111
	FEB.	0000000000111		FEB.	0.0		FEB.			FEB.	00000
	JAN.	000000000000000000000000000000000000000		JAN.	00.0		JAN.	00000 0000		JAN.	00000
	STATION	6.7 55.0 6.7 55.0 6.7 55.0 6.7 55.0 70.0 70.0 70.0		STATION	0.0 51.0 2.0 46.0 3.3 29.0		ATION	6.7 32.0 6.7 32.0 6.7 32.0 6.7 32.0 6.7 40.0 6.7 40.0 6.7 31.0 6.7 35.0		STATION	3.3 80.0 6.7 100.0 3.3 80.0 3.3 80.0
	ST			ST	1088		ST	866666666666666666666666666666666666666		ST	92888

	DEC.	1-1	ı	1 1	1	1	ı	ı	ı	L	ı	ı	1 1	1	1	ı	i	ł	ı	ł	i	ı	ı	1	1 1	li	1	ı	ı	1	í	1	ı	ı	ł	1 !	1 1	1	ı	l	
	NOV.	1 1	ı	1 1	ı	i	ı	ı	1	ı	ı	ı	1 1	1 !	. 1	1	ı	1	i	ı	ι	1	ı	ı	1 1	1												000			
	OCT.	0.0					-														0.0							1	ı	ı	ı	1	1	ı	ı	ı	1	1 (ł	ı	
1 1 1	SEP.	11	ŀ	1 1	1	ı	ı	ı	1	1	ı	ı	ı	ı	l 1	1	1	1	ı	ı	ı	t	ł	ı	i	1	i i	1 1	1	ı	ı	1	ı	ı	I	1	ı	ii	í	ı	
(AUG.	1 1	ı	1 1	1 1	ı	ı	ı	١	i	ı	ŧ	ı	ı	H		1	1	ı	1	1	ı	ι	ı	I	ı	I	l	1 4	ı	ı	1	ı	ı	ı	ı	i	1 1	ı	1	
(cont.	JULY	00								0								, , ,		0				o.	÷		÷		0		0 1	0 1	0		0						
ricus	JUNE		ı	ŀ																		9	4			01		٠ د			0						٠ ص	20.1	0 0	4	
symmetricus	MAY	0.0		0		1 1	ı	1	ı	ı	1	ı	ı	1	1	ı	1 1	1	1	ı	ı	i	ı	1	ı	1	ı	i	1 1	l I	1 1		1	1	ı	ı	ı	1	1	ι	
Trachurus	APR.	160.2					8	. 6												e M					0.0									ŀ							
Tre	MAR.		ı	1		0.0	ì				ı		0.0								1	ı	i	- 4	0.0	- 6		ı	ı			•		0				0.0		00	
	FEB.	0.00							ı		0.0		ŀ		0.0	á	ł	ı	H					•	ı	l			0.0		1	1 1	- 1	ŀ	1	ı	ı	I	1 1	ı	
	JAN.	0.0											4										9 0	1	0 0										0 0					000	
	Z	100		0	0	ın c		•				0	2	0.	0	2	0	s c	O L	0 0		•		2	0	5	0.	0	0	0		'n	ی د	·		0	5	0	٠ د	0.08	
	STATION	60	* u	9	9	0		500	•	9 (*	9 6	9 6	9	9	96	00.	00	00.	000					300	03.	03.	03.	03.	03.	03.	90	900	900	900	900	10.	10.	10.	010	0 0	

TABLE 4. (cont.)

1	DEC.	1-1		DEC.	1		DEC.	!		DEC.		DEC.	1 1 1 1
	NOV.	1 1		NOV.			NOV.			NOV.	00.	NOV.	1111
	OCT.	0.0		OCT.	0.0		OCT.	0.0		OCT.	000000000000000000000000000000000000000	OCT.	1000
	SEP.	1 1		SEP.			SEP.	1		SEP.		SEP.	1111
	AUG.	1 1		AUG.			AUG.			AUG.		AUG.	1111
	JULY	92.3		JULY	4.5	is	JULY	0.0	S	JULY		JULY	17.7
dae	JUNE	0.0	idae	JUNE		Atractoscion nobili	JUNE	9.5	lineatus	JUNE		JUNE	56.9
Gerreidae	MAY	1 1	Haemulidae	MAY	0.0	toscior	MAY		Genyonemus	MAY	Seriphus F	MAY	0.0
	APR.	0.0		APR.	0.0	Atrac	APR.	0.0	Geny	APR.	Ser Ser	APR.	000
	MAR.	0.0		MAR.			MAR.	0.0		MAR.	119.1 63.3 78.7 0.0	MAR.	1100
	FEB.	1 1		FEB.	0.0		FEB.			FEB.	15861 158633 31068 1000 1104 1113	FEB.	00.01
	JAN.	0.0		JAN.	0.0		JAN.	0.0		JAN.	0.00	JAN.	0000
	N.C	29.0 35.0		N.	40.6		Z	28.0		Z	8333640000000000000000000000000000000000	Z	33.0 28.0 26.0
	STATION	103.3		STATION	83.3		STATION	0.06		STATION	633.33 663.33 663.33 663.33 665.77 666.77 966.77 966.77	STATION	63.3 90.0

	DEC.	1111		DEC.	i i		DEC.	 	1	ı	ı	ı	I	1 1	1	1	1	ı	í	1	ı	1 1		DEC.	1		DEC.	1 1
	NOV.	1111		NOV.	1 1		NOV.		1	1	ı	ı	1	1 1	1	1	i	ı	1	9	0	0.0		NOV.	0.0		NOV.	
	OCT.	3.9 0.0 0.0		OCT.	0.0		OCT.			0.0	0.0	₹.0	0.0	000		0.0	0.0	0.0	0.0	1	ı	1 1		OCT.			OCT.	0.0
	SEP.	1111		SEP.	§ §		SEP.] 	ı	ı	ı	1	ł	1 1	i	à	1	ı	à	ı	1	1 1		SEP.			SEP.	
	AUG.	1111		AUG.	1 1		AUG.		1	1	ı	ł	ł	1 1	1	1	ı	1	å	ı	ı	1 1		AUG.			AUG.	
	JULY	6.00		JULY	0.0		JULY	11.2	10.4	11.0										- 4		0.0		JULY	0.0	CT.	JULY	13.4
idae	JUNE	0.0 37.9 8.1	idae	JUNE	0.0	japonicus	JUNE		1	ı	ı	ı	1 0									5.0	xantusi	JUNE	5.0	argentea	JUNE	
Serranidae	MAY	0.0	Gempy1	MAY	1 1		MAY		0.0	0.0	0.0	0.0	0.0	1 1	ı	ŧ	1	1	i	ı	1	1 1	Lepidopus	MAY		Sphyraena a	MAY	0.0
	APR.	0000		APR.	9.6	Scomber	APR.		0.0	0.0	0.0	0.0	0.0	000	o o i	0.0	0.0	0.0	0.0	0.0	1 9	0.0	Lepi	APR.	0.0	Sphy	APR.	0.0
	MAR.	0.0		MAR.	1 1		MAR.		ı	ı	i	ţ	1 4	000	. 1	0.0	0.0	0.0	0.0	0.0	0.0	00.		MAR.	0.0		MAR.	
	FEB.	0.0		FEB.	0.0		FEB.)	0 0			0.0	0	1 1	0.0		ŧ	ı	ŧ	ı	ı	i i		FEB.			FEB.	0.0
	JAN.	0000		JAN.	0.0		JAN.	ŀ	0 0		0	0.0		0								000		JAN.	0.0		JAN.	0.0
	STATION	83.3 40.6 86.7 33.0 90.0 28.0 93.3 26.7		STATION	90.0 100.0		STATION	3 3 70	6.7 100.	0.0 90.	3.3 40.	3.3 51.	6.7 80.	0.0 28.	0.0	3.3 60.	6.7 29.	6.7 30.	00.00	06.7 31.	06.7 60.	110.0 40.0		STATION	110.0 50.0		STATION	83.3 40.6 86.7 70.0

TABLE 4. (cont.)

			S	Sphyraena	a argentea		(cont.)					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
103.3 29.0	0.0		0.0	0.0		2.7	9.0	11	1-1	0.0	0.0	1.1
				Icichthys		lockingtoni	ind				1	
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
0 0 65.	1	1 (1	1	į
0 70		4.3	1	10.8	0.0	1	0.0	ŀ	1	0.0	I	I
0.0 80.		- 0	i	1.	0	·	0.0	1	ŧ !	2.0	1 1	1 1
3.3 65.			i i) C	1 0	l 1	ا در با در	1 1	1 1	0-0	1	1
3.3		0 0		0	10.6	1	0.0	ł	1		ı	1
6.7 70.	0 0	0 0	ì	0.0	0.0	1	21.8	1	1	0.0	ı	1
0.0 65.			ı		ŀ	1		1	1	I	1	I
0.0 80.		- 6	!	1	0.0	ı	0.0	1	l	ı	I	
0.0 90.		- 6	1	1 0	0	l	0	! !	1			ı
3.3 60.	0		1	0.0				1 1	1	0	- 1	1
3.3 70.		0	1 1	70.01	0	1 1	10.0	1 1	1		ı	ı
6.7 00.	0	0	1	0.0	0 1	ı	10.01	١	ı)	1	1
2.0 46.	0 0	0 0	ı	0.0	0 0	ı	0.0	1	1	0.0	1	1
3.3 55.	0 0		ì	0.0	0	ı	0.0	ı	I	0	l	1
3.3 60.	0	0	ı	0 . 0	0.0	ı	0.0	ļ	ı	10.8	ı	l
3.3 70.	- 0	0	1	0.0		1	10.5	I	1	0	1	i (
3.3 100.			l	n c	0	1	000	1 1	1 1		1 1	1 [
6.7 70.	0		ı	0.0	8	ı		}		0	ł	ı
6.7 80.	0	0	1 (000	20.4		000	1 1	ŀ	9 (1	ŀ
000	6		ı	. 1	. 1	10.1	0.0	ı	1)	ŧ	1
3 3 90	0 1	0 (1	0.0	1	0.0	10.8	1	ļ	0	ı	1
3 3 100	0 (0 (1	0.0	ı	0.0	10.8	1	ı	0.0	ŧ	1
0.0 45.	5.1	0	0.0	0.0	ı	0.0	0.0	ı	1	6	ŀ	\$
				Peprilus		simillimus	15					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
63.3 50.0	0.0	0.0		0.0	0.0		11.6	1 1	1-1	0.0	1 1	1 1
				Tetra	Tetragonurus	s cuvieri	ri					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
							E 3		1 1			
66.7 100.0	0.0	0.0	I	ı	0.0	ł	D • C	og .	l	ļ		

	DEC.		DEC.	111111	DEC.	1 1 1 1 1
	NOV.	111111111111111111111111111111111111111	NOV.	0.0406	NOV.	1111
	OCT.	0004008 1 4 1 2000000000000000000000000000000000	OCT.	0.4.001111	OCT.	00000
	SEP.		SEP.	1 1 1 1 1 1 1 1	SEP.	11111
	AUG.	1111111111111111111111	AUG.	1111111	AUG.	1 1 1 1 1
cont.)	JULY	00000000000000000000000000000000000000	JULY	00000000	JULY	00000 00000
cuvieri (JUNE	nt: dae	JUNE	0000000	12	0.0
	MAY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MAY		MAY	00011
Tetragonurus	APR.	0000000 m0000000000000000000000000000	APR.	mooooo 0	APR.	00000
Tet	MAR.	000 000 00	MAR.	1.00.0	MAR.	0.0
	FEB.	000000000000000000000000000000000000000	FEB.	00 00 00 00 00 00 00 00 00 00 00 00 00	FEB.	0000
	JAN.	040000000000000000000000000000000000000	JAN.	0.001	JAN.	00004
	STATION	70.0 73.3 80.0 80.0 80.0 86.0 86.7 70.0 86.7 70.0 90.0 90.0 90.0 96.7 70.0 96.7 60.0 96.7 60.0 96.7 100.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 60.0 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.0 96.7 96.0 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.7 96.0 96.7	STATION	83.3 100.0 96.7 300.0 100.0 50.0 103.3 60.0 103.3 100.0 106.7 60.0	STATION	60.0 63.3 73.3 55.0 73.3 50.0 86.7 35.0

TABLE 4. (cont.)

	DEC.	1 1 1		DEC.	i i	l i	1	1 1	I	1 1	ı	I	ii	1	1 1	1	ı	1	i I	i	ı		DEC.	11111	1 1 1
	NOV.	1 1 1		NOV.	1 1	1 1	1	l i	1	ı	ı	i	1 1	ı	1 1	1	ı	ı		1 1	ŀ		NOV.	11111	1 ()
	OCT.	0.00		OCT.	80.0			7.6		0.0	1 1	35.0	000	0.0	000	0.0	0.0	0.0	0,0	0.0	4.7	 	OCT.	0.0 0.0 0.0 86.0	
	SEP.	111		SEP.	1 1	1	l i	1 1	i	ŁI	ı	ı	1 I	ı	1 1	ı	ı	I	ı	1 1	ı		SEP	11111	111
	AUG.	111		AUG.	1 1	i	1 1	LI	i	1 1	ı	ŀ	1 1	ı	1 1	ı	ı	ı	l	1 1	ı		AUG.	11111	1 1 1
ont.)	JULY	000	gns	JULY	0.0	0.00	23.2	0.0		2.5	0		18.9									eus	JULY	10.0	
spp. (cont.	JUNE	000	sordidus	JUNE	1 1	ı	1 1	1 1	1	1 1	1	i	l l	1	1 1	1	ı	í	i		0.0	stigmaeus	JUNE	11111	111
		111	Citharichthys	MAY	00	0.00	00.0	0.0					000		4				- 6		ı	Citharichthys	MAY	000000	
Citharichthys	APR.	000	Cithar	APR.	0.0	I	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	000	0.0	0.0	0.0	0.01	0	Citharı	APR.	0.0000	0.0
0	MAR.	000		MAR.		ŧ	1 1	1	1 1		1 1	1	1 1	1	1	1 1	ı	1	ı		0.0		MAR.	11111	1 1 1
	FEB.			FEB.			0.0		0 0		0 (•		0 0		0		1		FEB.	000000	
	JAN.	0.0		JAN.			000			6,6			0.0			0 1	0 0	4			0		JAN.	000000	0 0
	Z	30.0 35.0 30.0		Z	55.	00	50.0	0.	00	m'	کار	0	00	0 -	5		200		0	0	0		Z	55.0 52.0 55.0 60.0	000
	STATION	96.7 96.7 103.3		STATION	0.09		93°9	m	9 9	0	00		mu	900	9	00	000	m	3	90	00		STATION	000000000000000000000000000000000000000	999

			Citl	aricht	Citharichthys stigmaeus	gmaeus	(cont.	(
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
7 60	0.0	0.0		0.0	0.0	1 1	0.0	1 1	i I	9.6	1 1	П
6.7 80			1		0 0	1		ı	1		1	ı
0.0	0 (1			ı	10.3	1	ı		1	1
0.0 60.			1	0.0	- 6	ı		ı	1	4.	ı	1
3.3 53.			ŀ	- 0		í		i	ı		ı	ı
6.7 51.			1		- 0	ı		ı	1	6	1	1
6.7 55.			1		- 6	1		1	1		ı	ŀ
6.7 60.			1			ŀ		ı	ı	- 0	i	I
6.7 70.			1			ı		1	ı		ı	i
0.0 51.			ŀ	8		1		ı	ı	0.	í	ı
0.0 60.			1		- 0	ļ		ı	1		ţ	ı
0.0 80.			1			ı		ı	1		ı	1
2.0 46.			1	0		ı	- 6	ŧ	ı		ı	ı
3.3 42.	-		ı		- 6	i		ı	ı	0	ı	ı
2 2 5	- 1		1			ŀ		ı	1		ļ	ı
3 3 70	•		1			í		ŧ	ı		1	1
6 7 23			ļ	1		0.0		ı	ı	- 6	ı	ı
6 7 35	0		1	0 (1	0.0		1	ı		ı	ı
6 7 50			1		1	0.0		1	1		1	1
6 7 70	0 (ı	1 0	0 " 0			ı	1	- 6	ı	1
20.0			10.7	- (ı	1		1	ı
0.0		ı	1		ı			ı	1		ł	ı
6.7 50.		1	- 4	0	ı	0.0		ł	1		1	1
0.0 35.	0	ı	16.4		ı	0		I	1		ı	ı
			٢	Citharichthus		vanthostiama	tions					
				7 12 12 1	- !		2					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
3 26	0.0		0.0	0.0	l	800	0.0	ì	ì	0.0	1	1
96.7 35.		1	.5.1		J		0.0	ı	i	0	ı	i
0.0 32.	I	I	10.3	ı	ı	ł	1	I	l	ı	ı	I
				Hippo	Hippoglossina	a stomata	ta					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
3.3 51.				ه ا	0.0	1		I	ı		1	ı
86.7 33.0 110.0 32.4	0.0	0.0	1 1	000	i i	10.0	000	1 1	1 1	0.0	8.7	H
	1			ŀ								

TABLE 4. (cont.)

			4	Paralichthys		californicus	nicus					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
0.0 50.		0		0.0	0.0		0.0			9.1		
3.3 50.			ı	10	0.0	I	0.0	I	1	1 0	I	1
32.5			1 1	0.0		1 (0.0	1	! (1 1	1 1
3.3 40.	0 0		1	4.3		1	000		1	0.0	1	1
6.7 35.			1	0.0	1	- 0	5.3	ļ	I	0.0	ŧ	ì
6.7 50.	- 6		940	8.0	1		0.0	1	1	0.0	ı	1
6.7 29.	0	ı	34.4	0.0	1	0	0.0	I	1	0.0	1	I
103.3 30.0	000	1 1	n 0 °	000	1 1	0.0	10.0	[]	1 1	0.0	t I	1 1
				Xyst	Xystreurys	liolepis						
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
6 7 48	1			2 5			0.0			0.0		
3.3 40.		0.0	ı	0.0	0.0	ı	0.0	1	1	15.6	ı	I
86.7 33.0	0.0		1 0	0.0	1	0.0	0.0	1	I	5.1	ı	1
0.1 73.	0	I	0.0	0.0	I	0.0	0.0	l	ſ	9.0	l	l
				Glypton	Glyptocephalus	s zachirus	irus					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
3.3 60.		0	l		0.0	000	0.0	1	1	0.0	1	1
6.7 60.			1	0	10.5	1	0.0	ı	ł	0.0	I	1
0.0 70.	9	b	1		11.3	1 1		1		0.0	t i	1 1
6 7 60	0	0	1 1	0	TO	1 1		1	1	000	1	1 1
76.7 70.0	0.0	0.0	ı	900	0.0	1	0.0	ı	ł	0.0	ı	1
6.7 80.			1		10.2	ı	0.0	l	I	0.0	1	I
				Hypsol	Hypsopsetta	guttulata	sta					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
96.7 29.0	0.0		14.8	0.0		0.0	0.0			0.0		
				Lepido	Lepidopsetta	bilineata	ata					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0 52.5	0.0	0.0		0.0	10.0		0.0			0.0		

	DEC.		DEC.	1111111	 	DEC.			DEC.	1
	NOV.		NOV.	11111111		NOV.	1111111111		NOV.	1
	OCT.	00000000000	OCT.	0000000	1	OCT.	0.0 0.0 1.11 0.0 0.0 0.0 0.0 4		OCT.	0.0
	SEP.	1	SEP.	11111111		SEP.	111111111		SEP.	1
	AUG.	1111111111	AUG.	1111111		AUG.			AUG.	1
	JULY	88.2 0.00 10.00 0.00 0.00 0.00 0.00 0.00	JULY	222.3 20.7 20.7 20.0 0.0		JULY	0.0 10.0 34.0 11.0 0.0	sns	JULY	0.0
exilis	JUNE		JUNE	18.6	vetulus	JUNE	00	coenosus	JUNE	1
Lyopsetta	MAY		MAY	0.0 0.0 0.0 10.2	Parophrys	MAY	0000000011	Pleuronichthys	MAY	10.5
Lyo	APR.	10.1 0.0 0.0 0.0 0.0 0.0 3.5 0.0 9.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	APR.	0.0000	Parc	APR.	000000000000000000000000000000000000000	Pleuror	APR.	0.0
	MAR.	0.00	MAR.	0.0		MAR.	11111100.0		MAR.	
	FEB.	0.00 0.00 0.00 1.00.7	FEB.	0000000		FEB.	76.0 168.0 14.1 0.0 0.0 0.0		FEB.	0.0
	JAN.	00000000000	JAN.	0000000		JAN.	14.5 14.6 0.0 100.0 0.0 0.0 0.0		JAN.	0.0
	STATION	60.0 60.0 66.7 66.7 66.7 70.0 70.0 70.0	STATION	60.0 60.0 73.3 90.0 80.0 80.0 80.0 100.0 86.7 80.0 96.0 60.0		STATION	60.0 63.3 63.3 63.3 63.3 52.0 63.3 52.0 66.7 49.0 70.0 93.3 29.0		STATION	80.0 51.0

TABLE 4. (cont.)

			Plet	Pleuronichthys	thys co	coenosus	(cont.	(
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
86.7 70.0	0.0	0.0		0.0	10.8		0.0	ı	ì	0.0	ı	ı
				Pleuron	Pleuronichthys	decurrens	rens			 		1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
63.3 55.0 66.7 60.0 83.3 70.0	9.7	10.8	1	0000	0.00		000	111	111	000	1 1 1	111
				Pleuro	Pleuronichthys	s ritteri	eri		1	! ! ! !	 	1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
76.7 48.0 86.7 33.0 90.0 28.0 96.7 29.0	0000	0.0	0.0	0.0 0.0 0.0 - 0.0 0.0 - 0.0 - 0.0	0.0 - - ichthus	0.0 37.9 0.0 0.0 0.0	9.6 0.0 0.0	111	F 1 1 F	0.05.1	1 1 1 1	1 1 1 1
				100	26	1					1 1 1 1 1 1	1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0 76.7 83.3 40.6 86.7 90.0 93.3 110.0 32.5	000000	00000111	19.1 10.8 10.3	000000	000	0.0001	19.8 0.0 4.5 70.6 0.0	111111	111111	0.47		111111
			P	settich	Psettichthys melanostictus	lanost	ictus	 				
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
76.7 48.0	0.0	0.0		0.0	7.9	ŀ	0.0	1	ı	0.0	ı	I
			1 1	Disint	Disintegrated	fish]	larva					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0 50.0 60.0 55.0 60.0 60.0 60.0 70.0	3.9 12.8 4.9 15.2 0.0	288.0 0.0 8.0 0.0	E I I I E	0000	4.2 0.0 0.0 20.1	11111	00000	1 1 1 1 1	1111	00000	1111	1111

			Disi	sintegrated	ed fish	h larva	(cont.	(1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC
00 0	1	1 .				1		1	ı		ı	1
0.0100.0			1			t		1	ı	0.0	ı	1
3.3 52.	4		ì	0.0		i		ı	ı		1	ı
3.3 55.	0	0	ı			ı		1	١	8	I	1
3.3 90.			ı			ı		I	ı		1 1	1 1
6.7 49.	4.		ł) -		4			1 (1 1	1
6.7 55.			i 1	7.17	70.0	1 1			1		1	ŀ
6.7 65			1	0	0	ı	÷	1	I		1	-1
6 7 80		0 0	1	1		ı	0.0	ł	1	0.0	ı	1
6 7 90.	0 (0	1	í		1		ı	1		I	1
6.7 100.			l		0.0	ı		1	1	ì	ı	1
0.0 60.	5.5	0	1	0.0		ı		1	I	0.0	ı	1
0.0 65.			ı	ı		ŀ		I	ŧ	ı	l	1
0.0 80.	0.0	₹.	1	ı	0.0	ı		t	1	ı	l i	1
0.0 100.			ı			1		1	l i		1 1	1
3.3 53.			ĺ	0.0		1	0		1		ı	1
3.3 65.		د	ı			1 1		1	ı		l	1
3.3 /0.			l 1	0.1		- 1	0 1	I	ł		1	1
.000	0	† ⊂	ı	1	1	i		ı	ı		1	1
6 7 48		0 (1		0.0	į		ı	ı	0.0	i	1
6.7 80.			ı			ı		1	ı		I	I
6.7 90.	0	0	ı	6		ł	0	ŀ	I		I	1
0.0 55.			İ	0		ı	0	1	1		ı	1
0.0 70.	0.		ı			ı		ļ	1		I	1
0.0 0.0			ŧ	8	0 1	ı	0	I	I		1 (1 1
0.0 100.	0.0	o-	1 (000	4. U.O	1 1		t I	1 1	0		1
2.0 4b.		0	1			ı	0 0	ı	1		1	1
3.3 42.		6 (ı	0 4		1		1	1		ı	1
3.3 55.		0	1			1		1	ł		í	ł
3.3 65.			ı		1	1		I	ı		ı	1
3.3 70.		0	i		10.9	1	0	I	I		I	1
3.3 90.			1					1 -	1 1	0	1 1	1 1
6.7 33.			I							0	ı	1
6.7 50.	0.0		1 1	000	1 1	00	0.0	1	I	19.9	ı	1
6 7 65	0	0	1	0	i	•	•	1	ı		ı	1
6.7 100.			4	- 4	0.0	i		1	ı		1	1
0.0 28.	0	•	0.0		1			I	1		ı	1
0.0 35.		1	1	- 0	i			Į.	I		ł	i
90.0 37.0	0.0	1	10.9	0.0		ي پ	0.0	i i	1 1		1 1	1 1
0.0		1 1		4	1			ı	i		1	1
0.0 60.	8.0	I		1	1			1	ı	i	1	1

	DEC.	1	1	ţ I	1	1	1	1	1	ļ	1	1	1	ì	1	{		I	1 1	1	1	1	ı	1	1	1	1	1	I	I	1 [١	1	I	1	1	1	l	1	I	1 1	1	1	
	NOV.	1	I	ı	1 1	1	Ī	ı	j	I	1	1	ŀ	ı	ı	1	ļ	and the same of th	1 (1	ı	1	J	í	ì	ı	1	ł			0						0		e c	0.01		0 1	
	OCT.	1			0	0 (0 0		0		- 6						0	8		0		0	0 0	0				0		0		1	1	ı	ļ	1	1	ı	1	ı	1	l 1	1 1	
	SEP.	1	ŧ	I	l I	1	1	ı	ı	1	ı	ļ	ı	ı	l	1	I	ı	1	1	1	1	ł	ì	1	ı	i	ı	ŧ	1	1	1 1	1	ı	í	1		I	1	I	ı			
	AUG.	ı	1	1	1 1	1	i	ı	1	1	1	į	I	ı	1	ļ	ŀ	ı	ı	1	1	ı	ı	i	l	ı	١	ı	1	t	ı		1	ı	1	1	I	1	1	I	I	1 1	l f	
(cont.)	JULY					0					0.		0.	0	0	0		0	0	٠ ١		0	0 1					0								0	- 0	0			0.0		0	
n larva	JUNE			0			0 1		0 0			4.	4							0			. A		0		0	- 6		0			0 1			-0					4 (•
ed fish	MAY	1	40	ı	1 1	1	- 1	ţ	1	ı	ı	1	1	1	1	1	I	1	1	ı	1 1	1 (}	ł	1	ı	ì	1	1	ı	ŧ	1	1	1	ţ	ı	ı	1	1	ı	ı	1	1 1	
integrated	APR.	0.0	Ī			0		0	0 (0		. 0					0		0				0 0								4	ο Δ	0 0				ı	ţ		4.4	0		8
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	FEB.		0.0		I	-in	l l	ı	ı	ŀ	i	1	1			. 0		ı	í	ì	1			0	0	1	ļ	t	1			٠		0	1	1	1	l	ı	I	1	I		
	JAN.		4.9	0	0		0		8	0 0				- 0	. 0		0				0			0				0			0		8	, ,	0			8			0.0		0	
		C	0	0	9		00			٠. ٥	0	5	0	0.	0	0	0	6	0	5	0	000			کا د		5	0	5	0	0				2	0	S	0	0.	0	0.06	0.	٠ د د	
	STATION	0.0	0.0	0.0	ر د د د	ال ال	200	200	2.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7	96.7 1	0.00	0.00	0.00	00.00	0.00	0.00		200	03.3	03.3	03.3	03.3	03.3	03.3	03.3	03.3	06.7	06.7	06.7	06.7	7.90	7.90	7.90		100.7	0.01	0.01

1	DEC.	11111		DEC.	t + 1	1	l I	ı	1 1	ı	1		1	1 1	1	1	1 (1	ŧ	ı	i	i	I	(1		1 F	ı	1	1	ı
	NOV.	000 100		NOV.	1 1 1	1	1 1	I	1 1	4	1	1 1	ı	1 1	i 1	ı	1	1 1	1	1	ŀ	I	l	ı	l I	ı	1 1	1	ı	†	I
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(AUG.	11111		AUG.	1 1 1	ı	1 1	ı	1	1 1	1	1 1	ı	l	1	ł	ı	I		ı	ı	ı	ı	ı	I	t	1		l I	ı	ı
(cont.	JULY	37.6 35.6 35.8	arva	JULY	11.0		0 1	1			42.7				0	; ;	- 0		0 1					5		0				0.0	4
h larva	JUNE	10.0 0.0 0.0 5.3	fish la	JUNE	1 1 1	1	1 1	1	1		ı	1 1	1	ı	1 1	1 1	i									0				0.0	
ced fis	MAY	11111	Unidentified	MAY	000		0.0		6		00								1 1	ı	ı	0.0	ı	ı	1	ŧ	1	1	1 1	1	t
integrated	APR.	008000	Uniden	APR.	0.0	4			6		26.1						0	9	0	0 00	0		0							0.0	
Disi		400000		MAR.	 	1 1	1 1	1	ı	1 1	ı	1 1	1 1	ı	I	1 1	1	I	1 1	1	ı	1			5.4		ı	L	11.11	• • 1	i
	FEB.			FEB.	0.00			0 0			0 0					0 1						0		1	ı		0.0		Į I		0.0
	JAN.	0.0 0.0 0.0 4.9		JAN.	0.0	0 0	0.0	6			0.0			0.0		0			0												
	NO	45.0 50.0 60.0 65.0 90.0		NO	100.0	803	488	65.	70.	100.	55.	60.	800	900	46.	40.4	51.	100.	ლი		60.	100.	28.	30.	37.	53.	70.	100.	50.	80.	90.
	STATION	110.00		STATION	63.3	بى دى		9	9	ه د		0		0.0	25	~ ~	300	3	9	٥	9 6	9	0	0	0.	0	0	0	m c	'n	

	DEC.	1	1	1	1	1	1	1	1	1	ŀ	1	ı	1	ŀ	I	1	1	I	ı	I	1	ł	1
 	NOV.	ı	1	ł	1	ı	1	1	ı	1	í	ı	ı	1	ı	1	0.0	4.9					15.5	
	OCT.	0.0	0.0	0 0	0.0		- 0	0.0		0 ° 0							1	I	ı	ı	١	I	ı	ŀ
	SEP.	1	1	ı	I	1	ı	1	ı	ı	I	ı	I	1	ı	ı	1	I	I	1	ı	1	l	ı
	AUG.	١	I	ı	1	t	ı	1	ŧ	ŀ	I	ı	1	ı	ı	ı	I	ı	1	ļ	1	ŀ	l	l
(cont.	JULY	0.0	0.0	0.0	0.0					0.0		- 0												
Unidentified fish larva (cont.)	JUNE	0.0	4.7	0.0	0.0	0.0	4.9	0.0	0.0	5.0	0.0	0.0	0.0	17.5	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	1	0.0
fish	MAY	1	1	ı	1	1	1	1	1	1	ı	1	1	1	1	1	1	1	ı	1	1	1	1	1
ntified	APR.			14.1			0										0.0					1	1	0.0
Unide	MAR. P		0.0	0	1		0.0	$\overline{}$		1	1	0.0	0.0				1	1	1	5.3	- 6		0.0	
		0			. 4	0.		1			.1		1		1		0.0		- 0		1	1		ı
	l 띯	0	1	1	4	0	-1		- 1	0	Z,					- 1							- 1	
	N. FEB	0 0	0	0.	0.0	0 .		- 0 . 0	0.	0.	0.0	0.	0.	- 0.0	.1	0.	0.	0.	0.	0.	0.	0.	- 0.0	0.0
	JAN. FEB	0 0 0	0		0.	0 .		0.	0.	0.	0.	0.	0.	0.	.1	0.	0.	0.	0.	0.	0.	0.	0.	5.0

Summary of pooled occurrences of all larval fish taxa taken on CalCOFI surveys from 1972 to 1984. Data for 1974, 1977, and 1980 represent single cruises that are part of surveys in 1975, 1978, and 1981, respectively. Taxa are listed in the same order as Table 4. TABLE 5.

	NAME	1972	1974	1975	1977	1978	1980	1981	1984
				# # #	1				
	Albula vulpes	1	ι	ı	1	ı	i	1	1
	Anguilliformes	26	2	8	ı	8	1	1	3
	Etrumeus acuminatus	4	ı	15	1	6	ı	ı	3
	Opisthonema spp.	ı	ł	7	ł	H	1	ı	1
	Sardinops sagax	27	11	51	8	46	13	28	16
	Engraulis mordax	548	155	842	47	454	47	417	314
	Argentina sialis	54	9	59	7	30	13	45	14
7	Microstoma microstoma	33	8	40	3	45	9	31	33
	Nansenia candida	44	t	26	ı	25	I	18	17
	Nansenia crassa	39	8	17	7	19	E	13	1
7	Bathylagus spp.	121	1	41	٣	47	1	49	26
	Bathylagus longirostris	7	ı	1	1	5	1	ı	1
	Bathylagus milleri	13	5	13	1	8	4	2	12
45	Bathylagus ochotensis	345	13	273	29	387	13	244	199
	Bathylagus pacificus	66	7	39	1	45	1	38	46
	Bathylagus wesethi	164	15	156	20	298	11	127	64
	Leuroglossus stilbius	387	52	363	28	218	22	298	187
7	Bathylychnops exilis	7	ı	1	İ	I	1	i	1
7	Dolichopteryx longipes	7	1	ł	ı	t	1	I	1
	Nacropinna microstoma	ł	1	1	ı	ı	ı	1	1
	Osmeridae	2	ŀ	t	I	П	I	I	1
-	Stomiiformes	œ	7	1	I	5	1	c	7
	Gonostomatidae	7	10	12	1	23	7	23	5
-	Cyclothone spp.	130	30	165	20	325	38	162	190
	Danaphos oculatus	51	9	49	2	73	3	17	17
7	Diplophos taenia	47	ı	7	ı	2	I	1	ı
	Gonostoma spp.	1	١	1	ı	2	ı	1	1
	Ichthyococcus spp.	7	1	8	2	40	4	18	8
	Valenciennellus stellatus	8	1	1	ı	3	7	٦	2
	Vinciguerria lucetia	271	48	164	40	379	65	222	287
	Vinciguerria poweriae	1	ŧ	ı	I	30	í	I	5
	Sternoptychidae	217	63	218	40	371	33	150	139

TABLE 5. (cont.)

NAME	1972	1974	1975	1977	1978	1980	1981	1984
	1 1	1		!			1	
Chauliodus macouni	123	10	78	11	126	12	55	29
Idiacanthus antrostomus	25	18	30	8	29	m	6	24
Aristostomias scintillans	5	ı	2	1	22	1	80	12
Bathophilus spp.	11	i	I	1	16	•	1	1
Eustomias spp.	1	1	ŧ	I	7	1	1	1
Photonectes spp.	ı	1	panel	ı	9	I	2	I
Tactostoma macropus	5	1	1	1	7	1	5	1
Stomias atriventer	1117	6	5.9	9	110	11	77	32
Myctophiformes	2	1	1	I	I	1	1	ı
Anotopterus pharao	1	ı	1	1	1	I	1	1
Evermannellidae	_	ı	1	í	ı	1	7	1
Paralepididae	32	5	17	1	16	I	6	10
Lestidiops ringens	82	16	39	11	63	11	58	61
Notolepis risso	10	í	5	1	17	1	5	12
Stemonosudis macrura	2	1	1	1	1	ì	1	ı
Sudis atrox	I	ı	1	ı	5	1	1	1
Aulopus spp.	9	1	ı	1	1	7	1	1
Scopelosaurus spp.	11	Т	10	í	23	7	6	6
Scopelarchidae	1	1	2	ı	3	1	2	ļ
Benthalbella spp.	ı	(1	I	3	1	1	1
Benthalbella dentata	9	ı	m	1	1.1	1	4	n
Rosenblattichthys volucris	15	7	23	2	2.1	2	7	11
Scopelarchoides nicholsi	16	ı	2	I	1	I	1	1
Scopelarchus spp.	24	ı	19	3	32	3	11	10
Myctophidae	123	12	8.0	9	154	17	159	111
Bolinichthys spp.	11	1	t	1	2	I	ı	7
Ceratoscopelus townsendi	89	5	99	5	212	18	80	115
Diaphus spp.	107	1	7.0	ı	141	2	25	74
Lampadena urophaos	14	2	5	1	19	1	5	7
Lampanyctus spp.	281	35	151	16	269	32	168	135
Lampanyctus regalis	25	1	29	İ	63	1	14	15
Lampanyctus ritteri	187	11	149	8	147	16	81	134
Notolychnus valdiviae	7	1	13	1	31	ì	2	10
Notoscopelus resplendens	6	1	9	ı	58	I	ω	9

NAME	1972	1974	1975	1977	1978	1980	1981	1984
		1	i	1		ł		
Parvilux ingens	ł	ŧ	ı	***	2	ı	1	ı
Stenobrachius leucopsarus	356	29	351	11	300	18	264	238
Taaningichthys minimus	1	1	ł	I		1	I	I
Triphoturus mexicanus	218	38	342	7	330	13	237	256
Triphoturus nigrescens	1	ı	I	ı	2	I	I	1
Benthosema pterota	9	ł	m	ŀ	1	I	I	1
Centrobranchus spp.	ŀ	l	1	1	9	ł	1	ı
Diogenichthys spp.	I	9		М	24	2	18	
Diogenichthys atlanticus	89		141	14	191	19	09	127
Diogenichthys laternatus	201	29			9		99	
Electrona rissoi	15	1	7	ı	20	ı	9	
Gonichthys tenuiculus	49	6	14	1	44	5	8	
Hydophum spp.	2	I	1	1	5	1	7	4
Hydophum atratum	120	9	16	1	47	1	10	10
Hygophum reinhardtii	12	1	6	7	29	2	2	
Loweina rara	2	ı	m	1	6	ı	m	7
Myctophum aurolaternatum	21	t	1	ı	I	I	I	ı
Myctophum nitidulum	13	9		5	9	4	13	2
Protomyctophum crockeri	388	62	299	39	361	87	344	327
Protomyctophum thompsoni	14	ı	1	i	l	1	1	
Symbolophorus californiensis	0	14		9	179	11	16	140
Tarletonbeania crenularis	377	26	\neg	1	97	17	72	40
Synodus spp.	11	7		7	14	12	7	1
Bregmaceros spp.	37	ı	1	1	I	1	I	I
Gadidae	1	1	f	1	1	I	I	t
Gadus macrocephalus	1	1	ı	ı	t	l	П	1
Microgadus proximus	4	ı	ı	ı	I	1	ŧ	i
Merlucciidae	7	•	1	t	t	I	f	
Merluccius productus	304	16	279	14	222	21	177	111
Moridae	14	I	1	1	٦	I	I	ı
Physiculus spp.	٦	ı	I	ı	ı	ı	7	ı
Macrouridae	18	ı	3	ě	9	1	4	m
Ophidiiformes	6	ı	15	ı	18	1	19	2
Brosmophycis marginata	7	l	5	1	11	I	S.	m

TABLE 5. (cont.)

NAME	1972	1974	1975	1977	1978	1980	1981	1984
	t 1	{ 1 1	1	1		1		1
	C			ı	i	ı	í	1
Carapidae	7 (1	ן ני		<	1	1	-
Chilara taylori	T)	I	1/	I	31 (ı	,	7 (
Ophidion scrippsae	7	9	18	ı	9 1	I	-	ī
Porichthys spp.	1	I	1	ı	7	1	ı	I
Antennariidae	٦	I	ì	1	1	l	I	1
Ceratioidei	9	1	11	I	₽*	7	ì	7
Lophiidae	1	ş	1	1	1	i	1	ı
Gobiesocidae	2	1	10	1	3	í	1	2
Exocoetidae	1	ı	1	1	1	1	3	6
Hemiramphidae	1	ŧ	1	1	I	1	1	1
Oxyporhamphus micropterus	1	1	1	1	I	į	1	1
Cololabis saira	31	1	7	ı	10	3	7	17
Atherinidae	٣	3	7	ļ	13	1	3	9
Trachipteridae	99	7	18	2	10	1	5	20
Eutaeniophoridae	2	ı	1	1	2	1	1	1
Melamphaes spp.	219	6	130	6	181	6	19	68
Poromitra spp.	15	ı	18	2	42	2	21	7
Scopeloberyx robustus	ı	1	1	ı	5	ı	1	2
\rightarrow	21	4	5	М	19	I	4	12
Nacroramphosus gracilis	1	c	1	ı	Э	2	4	2
Syngnathus spp.	2	3	œ	1	9	1	4	2
Agonidae	17	1	11	1	1	2	7	3
Anoplopoma fimbria	1	ı	1	1	1	1	1	ı
Cottidae	28	5	44	2	17	2	23	21
Scorpaenichthys marmoratus	13	3	15	1	9	Э	1	9
Cyclopteridae	14	1	13	1	m	1	7	l
Hexagrammidae	16	1	1	I	2	1	ı	1
Ophiodon elongatus	ı	ţ	1	1	ı	ı	7	I
Oxylebius pictus	3	1	4	ı	1	Ι	9	4
Zaniolepis spp.	9	2	23	4	11	m	2	9
Scorpaenidae	2	l	1	t	I	1	1	ŧ
Scorpaena spp.	3	1	11	ı	8	1	9	-
Sebastes spp.	509	94	260	30	429	52	379	284
Sebastes aurora	18	I	13	2	29	2	20	7

NAME	1972	1974	1975	1977	1978	1980	1981	1984
	1	 	1	1	!	1	1	1 1
Sebastes jordani	9.0	1	42	1	47	7	22	9
Sebastes levis	13	1	17	1	8	I	2	٦
Sebastes macdonaldi	15	I		1	17	1	8	2
Sebastes paucispinis	140	10	73	11	48	7	48	35
Sebastolobus spp.	6.5	1		į	32	1	19	1.5
Prionotus spp.	9	ł		ě	7	1	3	ı
Blennioidei	6	1	4	1	t	1	©	2
Bathymasteridae	٦	l	1	1	1	1	I	1
Hupsoblennius spp.	16	9	82	l	20	2	19	14
Clinidae	30	6	29	2	23	m	17	15
Gobiidae	88	56	121	10	73	9	38	19
Microdesmidae	J	1	ı	ı	1	1	1	i
Icosteus aeniqmaticus	12	ı	1	1	2	al a	3	m
Labridae	10	ı	1	ı	1	ı	1	1
Halichoeres spp.	6	ı	26	I	21	ı	7	2
Oxyjulis californica	21	1	23	1	99	_	33	14
Semicossyphus pulcher	I	Į	∞	I	4	1	c	m
Pomacentridae	2	I	i	1	1	1	1	l
Chromis punctipinnis	2	I	22	٦	14	I	16	10
Hypsypops rubicundus	ı	1	က	1	ı	I	_	1
Mugil spp.	2	1	I	}	1	ŀ	ı	I
Howella brodiei	2	1	1	1	6	ł	1	1
Brama spp.	7	ı	3	+	7	í	I	I
Carangidae	4	í	10	i	8	ı	П	1
Seriola lalandi	1	I	ς,	1	7	i	J	Ι,
Trachurus symmetricus	116	l	119	-	137	-	87	09
Caristius macropus	ı	ı	+	1	2	ı	i	ı
Coryphaena hippurus	9	1	4	ł	2	ţ	3	1
Gerreidae	Н	ı	5	I	e	ı	ć.	2
Haemulidae	7	1	8	ı	12	ı	2	1
Girella nigricans	ı	ı	1	_	3	I	2	I
Medialuna californiensis	2	ı	3	1	1	l	1	I
Caulolatilus princeps	7	I	2	1	2	ŧ	2	I
Sciaenidae	63	28	260	16	111	l	7	ì

TABLE 5. (cont.)

NAME	1972	1974	1975	1977	1978	1980	1981	1984
		1	and the same of th		-	1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1
Atractoscion nobilis	1	I	ı	I	1	1	ı	1
Cheilotrema saturnum	ł	1	1	1	1	1	2	ı
Genyonemus lineatus	1	1	1	I	1	15	64	25
Roncador stearnsii	1	ı	1	I	1	ı	1	1
Seriphus politus	1	ı	ı	1	1	1	26	5
Serranidae	21	ł	55	1	32	7	26	5
Polynemidae	ı	1	1	I	1	1	ł	I
Gempylidae	15	ł	ı	ı	12	1	П	2
Scombridae	1	1	1	1	_	1	1	1
Auxis spp.	4	ı	ı	1	2	1	1	1
Euthynnus spp.	1	1	1	ı	1	l	1	ŧ
Sarda chiliensis	4	1	е	1	i	ļ	1	1
Scomber japonicus	m	1	8	1	61	1	98	17
Thunnus albacares	2	ŀ	į	1	1	1	1	1
Lepidopus xantusi	7	1	10	7	11	1	8	1
Sphyraena argentea	ı	1	6	1	5	1	14	S
Icichthys lockingtoni	140	9	46	2	73	ı	22	32
Cubiceps caeruleus	1	1	ı	1	1	1	1	1
Cubiceps pauciradiatus	12	ı	ı	1	1	ĺ	1	ı
Psenes pellucidus	5	ł	1	ì	9	1	1	ı
Psenes sio	5	1	I	ī	1	l	í	1
Peprilus simillimus	11	9	54	m	65	ı	31	2
Tetragonurus cuvieri	13	8	15	2	24	9	8	25
Chiasmodontidae	15	5	11	4	38	2	20	6
Uranoscopidae	1	t	ı	1	1	1	1	ı
Pleuronectiformes	8	1	ı	t	2	l	l	ı
Bothidae	Н	ı	1	ı	ı	4	ı	1
Bothus spp.	80	ŧ	1	1	l	1	ı	1
Citharichthys spp.	227	96	357	27	297	09	153	8
Citharichthys sordidus	I	ł	1	1	1	1	1	27
Citharichthys stigmaeus	92	33	133	20	131	24	63	41
Citharichthys xanthostigma	1	ı	ı	ı	1	1	1	c
Cyclopsetta spp.	1	I	ì	1	ı	1	1	1
Hippoglossina spp.	1	1	ı	1	1	1	ı	ı

TABLE 5. (cont.)

NAME	1972	1974	1975	1977	1978	1980	1981	1984
							\	٢
Himpolossina stomata	17	∞	36	1	21	1	9	T)
paralichthus californicus	37	25	106	₽ †	47	2	28	13
of each market and a second	5	1	ı	I	ı	1	1	1
Syderium Ovare	5	4	12	٢	5	ı	3	4
Aystrearys morepus	15	ı	4	i	22	1	24	8
Glyptocephalus zachilus		2	80	2	7	1	2	7
hypsopserea guecaraca		ı	ı	1	1	ı	ŧ	1
Isopsetta isolepis	י ר	1	C	ı	_	ı	1	1
Lepidopsetta bilineata	n 4	١	20	1	41	2	57	12
Lyopsetta exilis	ה ה	_	0	1	28	1	14	8
Microstomus pacificus	/ T	7 4	7	_	20	ı	38	16
Parophrys vetulus	ר ר		9 -	ı 1	7	J	2	I
Platichthys stellatus	٥	1 1	٦,		•	ı		1
Pleuronichthys spp.	l	-	{	1	1	ı	, ,	0
Pleuronichthys coenosus	m	1	Υ) (I	0 -		7 -	ı (*
Pleuronichthys decurrens	8	7	m	l ,	٦ ٧	! *	7	1 <
Pleuronichthus ritteri	8	2	33	Т	٥	đ (11	r c
plenronichthus verticalis	21	1	100	2	22	2	24	ω ,
Destrichthus melanostictus	8	1	2	ı	7	1	1	Ţ
A SECULTURE AND	2.0	8	26	1	16	I	ω	1
Symptotics spp.	258	27	196	00	224	22	147	168
Disintegrated fish larva	200	1 (000	13	162	7.5	109	69
Unidentified fish larva	7.7.7	7.7	100	71	102	1	1	

TABLE 6. List of stations which were occupied twice in one month during 1984.

Statio	on	Month
73.3	50.0	10

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CalCOFI Ichthyoplankton Data Reports

- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1951. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-79, 196 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1952. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-80, 207 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1953. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-81, 186 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1954. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-82, 207 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1955. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-83, 185 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1956. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-84, 189 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1957. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-85, 225 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1958. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-86, 248 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1959. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-87, 273 p.



- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1960. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-88, 253 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1961. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-92, 167 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1962. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-93, 179 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1963. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-94, 209 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1964. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-95, 222 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1965. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-96, 220 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1966. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-97, 287 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1967. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-98, 103 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1968. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-99, 112 p.

- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988.
 Ichthyoplankton and station data for California Cooperative
 Oceanic Fisheries Investigations survey cruises in 1969. U.S.
 Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-100, 265 p.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1972. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-109, 219 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1975. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-110, 229 p.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1978. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-111, 216 p.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1981. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-112, 170 p.
- Stevens, E. G., R. L. Charter, H. G. Moser, and C. A. Meyer. 1990. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1984. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-141, 157 p.

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